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# The Teaching of Geography in Switzerland and North Italy

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# The Teaching of Geography in Switzerland and North Italy.

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# The Teaching of Geography
# in
# Switzerland and North Italy

BEING

The REPORT presented to the Court of the
UNIVERSITY OF WALES on a Visit to
SWITZERLAND and North ITALY in 1898,
as GILCHRIST TRAVELLING STUDENT,

BY

JOAN BERENICE REYNOLDS, B.A.

ASSISTANT MISTRESS IN THE CARDIFF INTERMEDIATE SCHOOL FOR GIRLS.

LONDON:
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# NOTE.

IN the year 1895 the Trustees of the Gilchrist Educational Trust established a Travelling Studentship for Teachers of the value of £80 per annum in connection with the University of Wales.

The object of this generous benefaction was to give Welsh Teachers an opportunity of studying the different phases of Education in other countries, and of reporting upon them with a view to the improvement of educational methods in Wales.

Under the Regulations made by the University with the approval of the Gilchrist Trustees the Studentship is conferred each year upon a Teacher holding an appointment in a Public School in Wales. The Student is required to spend not less than three months in studying, either abroad or in the United Kingdom, some educational problem approved by the University.

The second award of the Studentship was made in 1897 to Miss Joan Berenice Reynolds, B.A., Assistant Mistress at the Cardiff Intermediate School for Girls. Miss Reynolds selected as her problem for study "The Teaching of Geography in Switzerland, including a consideration of the appliances in use."

The Executive Committee of the University, on consideration of Miss Reynolds's Report, decided that it was worthy of publication, believing that the information contained in it will be of material value to Teachers, School-Managers and others interested in Education in Wales.

In the name of the University of Wales, I venture to express the hope that this little volume will meet with the cordial reception which, in the opinion of the University, its interest and value deserve.

ISAMBARD OWEN,
*Senior Deputy Chancellor of the*
*University of Wales.*

*July*, 1899.

# PREFACE.

GEOGRAPHY has always been my special and favourite teaching subject, so that I had read all the books named in my Bibliography, as dealing with the subject generally, long before I thought such an interesting opportunity for research would be given to me as that afforded by the Gilchrist Travelling Scholarship. This reading convinced me that more importance is attached to this subject abroad than in the majority of British schools and Universities; I was, therefore, especially glad to be appointed Gilchrist Scholar by the University of Wales in 1897, "for the purpose of examining the Teaching of Geography in Switzerland and North Italy."

I owe my warmest thanks to the Trustees, and to the Welsh University for this appointment, and also to Dr S. Keltie, Dr Mill, Mr Mackinder, Mr Yule Oldham, Mr Sadler and others, who by their kind advice and recommendations aided me in undertaking this research.

Although I was occupied in travelling abroad to perform the work only from April to August, 1898, I spent six weeks at Geneva, during the summer of 1897, studying the educational systems of the cantons, collecting syllabuses, reading in the library of the Geographical Society, and doing what I could to fit myself to make the best possible use of the time abroad during the following year. This preparatory study revealed great differences in the educational arrangements of the various cantons, and showed me it would be well to visit more places in Switzerland than I had at first thought necessary. In the Appendix (C) will be found a complete list of the Institutions I saw in the following towns:—Zürich, Basel, Bern, Geneva, Lausanne, Neuchâtel, and Freiburg.

The teaching of Geography in North Italy is at present in somewhat the same unsatisfactory state as is the case in this country, but strenuous efforts are being made to improve it. A very highly centralised system of educational government has produced almost uniform methods throughout Italy, hence there are fewer novel features to examine, and I only thought it necessary to visit institutions at Milan, Turin, Genoa, and Pavia: then, by correspondence with various professors, I ascertained the state of the teaching elsewhere. I have placed the chapter dealing with my work in North Italy at the end, as I have felt it best to separate it entirely from my main work, which lay in Switzerland.

The great contrast which the educational systems of these two countries present, owing to their wide difference as regards centralisation, increased the interest I experienced in this investigation. Neither in Italy nor in Switzerland did I experience the least difficulty in obtaining free passes into Institutions, the syllabuses and regulations of the same, or any information, from the various governments, required for this Report. On the contrary, though I was often the first woman who had been present at lessons given in Colleges and Gymnasiums, I was treated everywhere with the greatest courtesy. I have given, in Appendices B and E, a list of those professors and teachers, who kindly granted me special interviews: to most of these I owe more than I can well say, both for their many acts of kindness and for direct help in my work.

Whilst sincerely grateful to them all, I must mention that I owe an extra debt of gratitude to Dr Brückner, Professor of Geography at the University of Bern, for revising the chapter dealing with the teaching of Geography in Swiss universities, and to Dr Mill, the Librarian of the Royal Geographical Society, who has kindly criticised the whole of my Report. In spite of this revision, and all the other precautions I have taken to insure accuracy, I feel it is impossible for such a work as this to be absolutely correct in all matters of detail, especially as syllabuses are constantly being altered in the various cantons. I can only ask for indulgence in this matter, stating that my best energies have been used in trying to give a true picture of the position which the subject of Geography occupies in Switzerland and North Italy, and of the methods employed to teach it, rather than in discussing minor details.

The opportunity for this research having been afforded me by the University of Wales, I feel this Report would be incomplete did I not here call attention to the exceptional facilities offered by Wales for giving greater prominence to the teaching of Geography, and introducing those methods in which Switzerland at present so markedly excels us.

There is no doubt that there exists even in this country a strong and increasing sense that no marked advance in the national standard of geographical teaching is possible, unless its leading teachers have access at the Universities to the best and most recent light obtainable on the subject. The University of Wales, unhampered by traditions, is starting on a free and open course and may be expected to follow the example of the Continent in opening its doors to the New Subject, with more facility than might perhaps the older seats of learning.

The mountainous character of Wales also offers, like

Switzerland, within a small, easily traversed area, a rich and varied store of natural phenomena, which might be utilised in educational out-door excursions, similar to those of Switzerland (here described) and with almost equal facility.

It would be well if advantage could be taken of the liberal educational spirit now rapidly growing in Wales, to raise the standard of our geographical apparatus, especially in the matter of topographical school-maps, to something like that of some of the continental countries.

It only remains for me to express the pleasure, as well as profit, I have derived from this work. This pleasure will be more than doubled if my Report is able to do anything, however little, towards stimulating an interest in Geography and aiding its fuller recognition in the schools and Universities of Great Britain.

J. B. R.

CARDIFF,
*October*, 1898.

# INTRODUCTION.

"Klein ist das Land, das wir bewohnen, aber gross das Arbeitsfeld."
"Small is the land in which we dwell, but great the field of labour."

THESE words were used by Dr Früh with reference to the exceptional opportunities for geographical study which Switzerland offers; and it is impossible to traverse that beautiful country without being struck again and again by the number of exquisite examples of natural phenomena which render it a veritable museum of Nature's own arranging. Professor Schardt has the same idea when he writes, "The country which we inhabit is preeminently one which offers us the greatest number of subjects for the demonstration of this science" (i.e. Geography), "and is moreover one of the most attractive. Is it not in Switzerland that several problems of the Physics of the world have found a definite solution? The researches on glaciers, the Föhn, the increase of heat in the interior of mountains, ascertained during the piercing of the St Gothard tunnel, the studies of lakes, their origin and the peculiar phenomena which they present, all these have attracted the attention of the whole world to our country and its scientific activity."

There is, however, another way in which the force of the words used by Dr Früh has been brought home to me, whilst occupied in examining the teaching of Geography in Swiss schools. For, although we speak of Switzerland as one small country, it is really a number of distinct countries or cantons, each of which, possessing a distinct educational system, requires a separate investigation. Professor Guex, in his report on the public schools of Switzerland, published on the occasion of the Scholastic Exhibition at Geneva, 1896, writes in the *Recueil de Monographies Pédagogiques*: "Our country in spite of the appearance of political unity it presents to a stranger, is in reality divided into twenty-five republics. These are quite autonomous, quite independent one of another, within the Federal limits, and jealous of the prerogative (which has rarely been infringed and never with impunity) of organising Public Education as they prefer, within their restricted domains. The result is that, with only a superficial area of 41,418 square kilometres and a population of under three million souls, Switzerland possesses twenty-five different scholastic organisations, each with its distinct code of laws, rules, admonitions and ordinances."

Within recent years there has been some attempt at producing greater uniformity in the school syllabuses enforced in the various cantons; at present the differences are considerable. A primary teacher trained in one canton is not allowed to teach in certain other cantons without undergoing a fresh examination; this, added to the differences of language or religion, accounts, in a great measure, for the distinct schools of method which have been produced. .As Professor Guex has pointed out, this system of educational "Home Rule" has its inconveniences, sometimes narrowing the general horizon, and checking a wave of new inspiration at a cantonal frontier. On the one hand we cannot but agree with him in thinking "that the Scholastic system is more practical, more suited to the many and different needs of the three well-defined divisions of the country, than a centralised organization. It has, moreover, the inestimable advantage of interesting everyone in the schools, and causing educational progress to be considered not only as an honour, but also as one of the most important ends a community should strive to attain."

I may here explain the spheres of the different schools and the names applied to them in French and German Switzerland respectively. Above the Infant School, or Kindergarten, comes the Primary or Elementary School, and attendance at this is compulsory at the age of 6 or 7. As a rule it contains 6, 7, or 8 classes representing the ages 6 to 12, 13, or 14 respectively. The syllabuses for these schools are uniform for the canton, and elementary Geography or "Heimatkunde" (study of the home district) is generally introduced at the fourth school year, when the child is 9 years old. From one to two hours a week is given to the subject in all the upper classes.

Above the Primary School, but often overlapping its final years, is the Secondary School, which in many respects reminds me of our Higher Grade Schools. It generally embraces 2 to 4 classes, or the years 12 or 13 to 14 or 15. The syllabuses are, as a rule, the same throughout the canton, and the majority devote 2 hours a week to the teaching of geography, which is taken by the class teacher.

Parallel with these Secondary Schools, most towns have a Lower or Preparatory section of a College, Gymnasium, or Canton School for boys, extending over the years 10, 11, and from 12 to 13, 14 or 15, when much the same ground is covered in geography, and the same time given to it as in the Secondary School. The boys who attend these schools are often drawn from a slightly higher social class than those who go to the Secondary School with the probable necessity of leaving to earn a livelihood when 15 years old. The masters also have higher qualifications, and teach special subjects, rather than all subjects to special classes; sometimes the school is richer in apparatus.

At the age of 14 or 15 the boy enters the College, Gymnasium, or Canton School, and is placed in that section which is supposed to prepare him for his future career.

# SWITZERLAND.

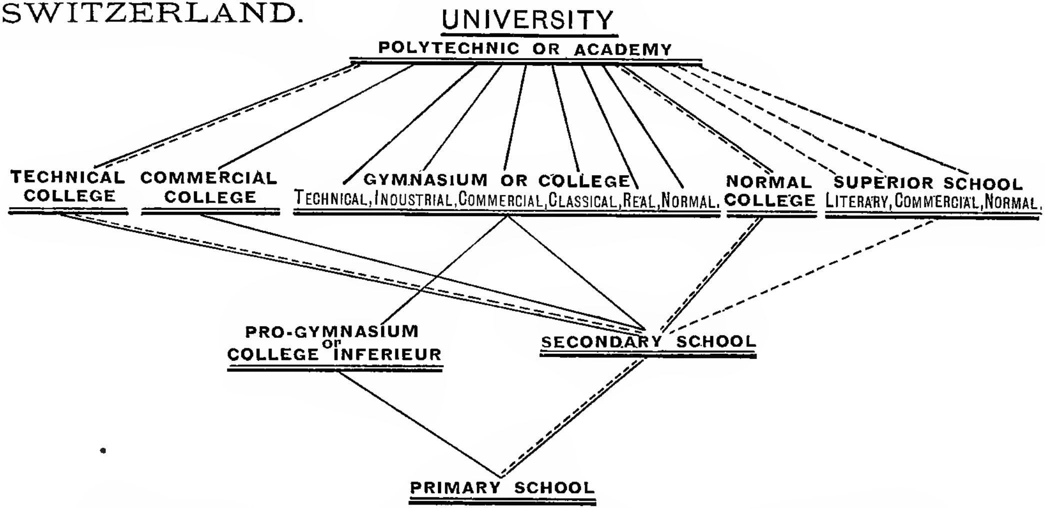

Diagram showing the Organised System of Public Instruction in Switzerland.

The continuous lines mark the course open for Boys:
the dotted lines show the route for Girls.

These schools are divided into:—

(*a*) A Literary or Classical section, sometimes called a "Lycée" and leading on to the University.

(*b*) A "Real" section, corresponding to the modern side of our Grammar schools and also leading to the University.

(*c*) A Technical and Industrial section.

(*d*) A Commercial section.

(*e*) A Pedagogic, Normal or "Seminar" section, for training the teachers for elementary schools.

Lessons are sometimes the same for some of the sections, but in other cases these sections are distinct schools, under the care of separate head-masters, and with different teaching staffs and syllabuses. These schools represent the years 15 to 17, 18 or 19. Geography is taught in most of them for two or even three hours a week, and by a specialist, who may either take this subject alone, or combine it with History or with Natural Science. Geographical teaching is weakest on the classical or literary side and, where a Gymnasium consists of this side only, as at Lausanne, may be entirely neglected.

The girl of 14 or 15, having passed through the Primary and Secondary Schools, enters the "Superior" school, or "Höhere Töchterschule," which is divided into:

(*a*) A Literary class, where general education is completed.

(*b*) A Commercial class, for those going into business.

(*c*) A Normal class, for those going to teach.

Geography is taught throughout, for two hours a week, and often by a specialist.

The education of girls is largely in the hands of men in Switzerland, and this must strike an Englishwoman with surprise and is a fact not to be overlooked in considering the methods of teaching in vogue. I am ready to confess that in many respects the teaching of Geography in the girls' schools has probably gained from being in the hands of men, who, especially in the past, have had more opportunities for travelling and for scientific study than women. Also a specialist can be had where otherwise this would be impossible, if the Girls' school employs a professor from the Boys' school. Yet I have been present at some Geography lessons given by men to little girls, which failed, where any woman, from her greater knowledge of child nature, would have rendered them successful.

A master, also, finds difficulties in conducting girl pupils for the long excursions, which form, directly and indirectly, so splendid a part of the training in practical geography given to boys; difficulties which, I think, a mistress might overcome. Those excursions which are undertaken by girls in the "Superior" Schools under the guidance of mistresses are usually only for a day and undertaken mainly with the objects of health and pleasure. On the other hand, some excursions undertaken by boys last for many days; they are conducted by learned professors, and have a direct educational bearing. So important do I consider the geographical value of these expeditions, that I have devoted a separate chapter to their consideration. They have had much to do in producing what is, I think, the most striking result of the geographical teaching in Switzerland, and that is a remarkably detailed and living knowledge of local topography, combined with the power of obtaining similar knowledge of unknown parts by scientific observation and interpretation of maps, pictures, &c.

After the immediate school surroundings have been studied, a year is often devoted to the canton, however small it may be; sometimes I have found a good portion of another year devoted to a revision of this local work either in the Primary or Secondary School, so that the names and positions of even the smallest villages are known. In many cantons there are text-books written by specialists, dealing with the geographical, geological, botanical, and historical features of the canton, which are used by the teachers, and from which abbreviated and illustrated books have been made for the use of the pupils.

We have nothing, that I know of, in this country, to correspond to such a series of school books. Our elementary text-books deal with geographical definitions, or the whole of England and Wales, or the World in outline, and not with a single country at great length. Nor have we so many series of beautiful topographical Wall and Hand maps in use in our schools, as the Swiss[1]. Those that we have are made for the use of certain classes, as cyclists, or geologists, rather than for school-children. In Switzerland they have been produced by the separate cantonal governments, expressly for teaching purposes.

After the children have studied the canton, Switzerland is taught in great detail, and with constant revision, in all grades of schools. Some advocate its study during the last year of school life, on the grounds that "it is well to take it when there is a possibility of undertaking longer school-journeys, to give life to what is learnt." Dr Brückner writes, "It is well to begin with the 'Heimatkunde' and to end with it also, so that we know the soil our roots are in, better than any other."

This thorough study of the Geography of Switzerland is also furthered by the fact of the country being such a tourist resort on account of its scenery. The formation of the English Alpine Club in 1857, and of the Austrian Alpine Club in 1862, inspired Dr Theodore Simler, Professor of Chemistry and Geology at the University of Bern, to urge the formation of the Swiss Alpine Club, which took place in 1863. It is impossible to overrate the impetus which these clubs have given to the study of Swiss Geography, not only by facilitating the exploration of the previously little known regions, but also by publishing maps, panoramic views, magazines, &c. Also in 1878 a special course of instruction for guides was established by the Swiss Club, including lessons on the Alps, map-reading, orientation, and sometimes on glaciers, geology, and botany. A Swiss girl once remarked to me, "I always thought English people must be so very fond of Geography, for I never see them without maps in their hands," and though I fear our zeal for map studying in Switzerland is rather the result of ignorance than knowledge, still this custom has done much to encourage the Swiss cartographic establishments, whose productions are so justly famous. Even in smaller details, the dials set up in public places and engraved with the names of the mountains to be seen from the spot, and the enormous quantity of photographs or illustrated postcards which are exhibited in the shop windows, chiefly to attract the tourists, all tend to impress on the Swiss child the beauty of his own country and the importance of knowing it.

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[1] The school reading books now being brought out by Edward Arnold are the nearest approach to these text-books that we have :—e.g. *The Story of Yorkshire.*

"He who knows not his own country has no standard by which to know foreign lands," writes Goethe. The Swiss child knows his country so well that sometimes there is very little time left for the knowing of other countries, and the instruction about them has to be so superficial, after the detailed treatment of his own land, that it is almost impossible to make him realise their relative size and importance. The sense of proportion has been lost, or rather never gained, and it is only in the advanced schools that it is gradually acquired. In the Primary Schools in cantons Appenzel, Freiburg, Schwyz and Uri, no attempt is made to teach more than the geography of the country, while in the Primary Schools of Bâle, Campagne, Bern, Glarus, Lucerne, St Gallen, Soleure and Unterwald, all that is taught about other countries in Europe or the rest of the world, has to be accomplished in two hours a week for one year, or less than this time. At Neuchâtel I found in the Primary Schools an attempt to convey some ideas on the Geography of the world, side by side with the special work on Switzerland, but the teachers I spoke to complained that, owing to the time required for the constant repetition of

Switzerland, this resulted in cramming, especially as girls, who came into the school from other cantons, were absolutely ignorant in this respect, and acted as a drag on the class.

Geography is much neglected in many of our schools at home, yet our children have better opportunities for picking up general information on the subject than the Swiss, on account of our numerous colonies, vast commercial relations and rich literature. The number of stories for children introducing descriptions of countries and dealing with travel and adventure, is far greater in Britain than on the Continent, and thus many names of far-off places have become quite as familiar to the British child as those of his neighbouring county; but elsewhere this is not the case. Our cheap and excellent newspapers, with detailed and often descriptive reports of foreign countries, give us a general interest in many parts of the world: they are, in fact, our greatest teachers of geography; hence, as a nation, we excel in the realisation of vast geographical questions, while still failing in systematised methods of school instruction. The question whether the restricted syllabus I have described is the best suited for the Swiss child or not, taking into consideration his environment and social conditions, is one which deserves closer study than I have been able to give it. I am inclined to doubt its entire adequacy even for Switzerland, and should certainly criticise adversely the adoption of similar syllabuses into a country like ours, whose children must not only be useful citizens of the United Kingdom, but also of the whole British Empire.

Whatever be the opinion as to the matter taught in the schools, many of the methods of teaching in Switzerland may be regarded as of the first order, and in the native land of Pestalozzi it would be strange if it were otherwise. I have devoted a good deal of space to the careful consideration of these methods, feeling that it was impossible to do otherwise in order to give a faithful picture of the present state of teaching, although much of what I have said may have been said before.

It will, I hope, still be useful to give details, as every year shows some slight modification, and enables a truer judgment to be formed as to the result of the experiments which are being tried. One result of the methods in vogue I have already mentioned, namely that of developing in a child the capacity for obtaining knowledge for himself.

In my first and second chapters I have tried to describe the prevailing ideas of specialists and others in Switzerland as to what is the aim of Geographical teaching in the schools and universities respectively, and the reasons which justify its obtaining a place in the curricula of both. My third chapter deals with the various methods which have grown out of these aims, in the schools; while those following, on School-Excursions, Map-making and the use of Apparatus are occupied with the more detailed consideration of certain methods of teaching, which I have thought it well to keep separate for the sake of clearness.

# CHAPTER I.

## THE AIM OF THE TEACHING OF GEOGRAPHY, AND THE REASONS FOR THE INCLUSION OF THE SUBJECT IN THE CURRICULUM OF SWISS SCHOOLS.

We have heard much in recent years against the old aim of geographical teaching, which appears to have been to load the child's memory with as many names as possible: though some teachers may still at times be guilty of pursuing this course, there are few, if any, who uphold it. Even those who consider the aim of geographical teaching to be merely the acquiring of a certain number of useful facts respecting the earth's surface, realise that names and words can be of no practical use, till they are clearly associated in the pupils' minds with the things they represent and the ideas they should convey.

Rousseau was one of the first, if not the first, to introduce into Switzerland the idea that Geography must deal with real objects, and their relative positions, rather than with words or even with symbols. In his *Emile* written at Geneva, 1762, he says, "You want to teach that child Geography and you seek for globes, spheres, maps, and a host of apparatus! What is the good of all these representations? Why do you not begin by showing him the object itself, so that he knows at least what you are speaking to him about?...Show the child his own dwelling. His two first starting points of Geography will be the town where he lives, and his father's house in the country; afterwards the places in between; then the streams of the neighbourhood, &c. By way of connecting these points, he should make for himself a map of all this. It will be a very simple map at first, consisting of only two objects; little by little he will add others, in proportion as he knows, or guesses, their relative distances and positions. After all, it does not so much matter that he should know exactly the topography of the country as how to teach himself about it; it matters little whether he have maps in his head, so long as he understands well what they represent and has a clear idea of the art necessary to make them. Behold already the difference between the knowledge of your pupils and the ignorance of mine! They *know* their maps, he *makes* them."

The same ideas which animate Rousseau in this passage inspired the Geographical lessons of Pestalozzi, and we have a charming description of how Geography was taught at Yverdon in 1804, recorded in the *Remembrances* of Professor Louis Vuillemin. It runs as follows. "The first elements of Geography were taught to us on the soil. As a beginning, our walk was directed towards a narrow valley in the neighbourhood of Yverdon, through which the Buron flows. We were made to contemplate it as a whole and in detail, until we had a true and complete mental picture of it. Then we were each invited to lay in a store of clay, which was found on one side of the valley, and we wrapped it up in large sheets of paper we had brought for this purpose. On our return to the Castle, the long tables were divided among us, and we were left to reproduce in relief the valley which we had just studied. The following days brought new walks and new explorations, each affording a higher point of view, and each time a fresh extension was given to our work. We went on in this manner until we had accomplished the study of the basin of the Buron, and, from the height of Monté la, which completely overlooks it, had grasped it in its entirety, and until we had finished our reliefs. Then, but only then, we passed from the relief to the geographical map, not being shown it till we had thus acquired an understanding of it."

It is interesting to trace the influence of Pestalozzi on Karl Ritter, who has hitherto been regarded as the great founder of the *science* of Geography, on account of his success in demonstrating its philosophical basis. Karl Ritter twice visited Pestalozzi at Yverdon, and has described the pleasure he received from these visits, to which he attributes his first realisation of the general principles of education; these principles he afterwards applied to the special teaching of Geography. Writing to his friends Zerenner and Guthsmuth he says, "I have learnt to value that method, which is based on the nature of the child....It is now my business to bring this method to bear within the domain of Geography. There is between Nature-study and History a great gap to be filled up. I have left Yverdon firmly resolved to fulfil the promise I made to Pestalozzi, namely to apply his method to Geography. Happily I have already got out of the chaos; I hold in my hand the thread which will conduct me to a knowledge of the world sufficient to satisfy the mind and heart." The title of his book, *Comparative Geography, based on the study of the Earth in its relations with Nature and with the History of Man,* tells in itself what he considers to be the great aim of Geography. At the beginning of the Introduction, he states, "It is necessary to point out that this science has direct bearing on Man for it is this point of view which gives to the study its importance and value."

The same idea, namely that Geography describes and explains the surface of the earth in its relations with Man, pervades the teaching of Guyot, author of *Earth and Man,* a pupil of Ritter, who, in 1838, was appointed to lecture on Geography and History at the Gymnasium and Academy of

Neuchâtel. This aim, I think, still predominates in Swiss schools. I distinctly say *schools*, as the question of the aim and place of Geography in a University is a different one, to which I have devoted a separate chapter.

However, this conception of Geography has been expanded in various ways, and it is now generally realised that, since the surface of the earth consists of atmosphere, hydrosphere, and lithosphere and what grows and lives thereon, therefore Geography has to deal with the relations between these divisions, as well as with their influence on Man. But teachers continue to emphasize the humanistic side, which appeals strongly to a child, is easy to develop, and affords opportunities for cultivating the imagination and even for instilling moral teaching; this is because they feel that psychological, rather than logical, reasons must regulate their treatment of this subject.

So much for the aim of Geography: we turn now to its position in the Swiss schools. We find that in 1893 a paper was written by Dr Finsler, Director of a Gymnasium at Bern, urging that Geography should be made subservient to History. Further, he thought it an unnecessary subject for the upper classes of the Gymnasium and for the "Final School Examination[1]." This paper led to a great controversy, and Dr Brückner of Bern, Professor Rosier of Geneva, and Dr Hotz of Basel have all written pamphlets on this subject, putting forward the reasons for promoting rather than curtailing its study. Those given by Dr Brückner are briefly as follows:—

1. Geography is a subject capable of developing the will-power.
2. It can produce the same feeling of reverence as the study of Philosophy or Classics.
3. It trains the powers of observation.
4. It is in itself useful.

---

[1] i.e. *L'examen de maturité.*

5. It is also useful as a connecting link between various subjects in a crowded time-table, especially between History and Natural Science.

6. It renders travelling educative, "for travel can enlarge geographical knowledge only when it is preceded by thorough geographical instruction."

7. It neutralises any narrowness of mind produced by the exclusive study of the history of one's own country, and yet cultivates the love of the home country, "for one can only love what one knows."

Dr Hotz and Professor Rosier say much the same, laying stress on the peculiar merit of Geography as an "Associating Science," and on its function in generalising from the laws of other sciences and applying the results. Professor Rosier writes, "Because Geography is contributed to by different branches, should one imagine that it is included in them? Not at all. A man of science asks Geology to tell him of what soil a country is composed, and of Climatology what is its metereological record, of Botany what are its characteristic plants, and of Zoology what are its principal animals. He brings together and compares these different elements, and uses them to study the conditions of existence of the inhabitants of the country, in order to penetrate the secret of their lives and thoughts; but in so doing he is not producing a work on Geology, Metereology, Botany, Zoology, or Ethnography, but certainly one on Geography. He leaves to each one of the sciences whose results he has utilised its particular aim and method, and from each of them he simply takes what was necessary to render his study of the whole intelligible. We see then how erroneous is the idea that Geography is adequately treated when it is taught only by including its divisions in allied subjects: to act thus is to suppress the comparisons and generalisations which constitute the science of Geography; it is to suppress the science itself."

The model syllabus for the four upper Classes of the

Gymnasium, according to Professor Rosier, would be as follows :—

| CLASS. | SYLLABUS. | HOURS PER WEEK. Classical section. | HOURS PER WEEK. Technical and Pedagogic sections. |
|---|---|---|---|
| IV. | Map-reading, General Geography of Switzerland and neighbouring countries ... ... ... | 2 hours. | 3 hours. |
| III. | Rest of Europe, Asia ... ... | 2 hours. | 3 hours. |
| II. | Africa, America, Oceania ... | 2 hours. | 3 hours. |
| I. | Physical and Anthropological Geography (The Earth and Man) ... ... ... ... | 2 hours. | 2 hours. |

In the "Final School Examination" he would not set questions of nomenclature and statistics, but such as would test the pupils' power of understanding a map, or realising the conditions of a people. He would provide the candidates with the necessary maps, and then ask such questions as the following :—

(*a*) Describe, according to Dufour's map, the route from Airolo to the Rhône glacier, by the Passes of St Gothard and the Furca.

(*b*) Describe, after Siegfried's map, the circle of summits and glaciers which surrounds Zermatt.

(*c*) Compare the Jura and the Swiss Alps from the point of view of their geological constitution, configuration, productions and occupations of the inhabitants.

(*d*) What influence have the Pyrenees exerted on the history of the Spanish peninsula?

(*e*) What causes the unequal density of population in Switzerland, &c.?

This paper of Professor Rosier's was read before the Geographical Congress at Bern, 1893, and the following resolutions were passed :—

1. Geography has a great educative value, if it is taught on modern lines.

2. No restriction of Geographical teaching should take place in the Gymnasium; on the contrary, an extension is necessary in the upper classes.

3. In order to secure the best results, Government must entrust Geography to teachers who have been specially trained for it, and not to those whom it does not interest.

4. As long as a Final School Examination is held, Geography should be recognised in it, and this examination should be separated from that of History and be treated on an equality with History and the Natural Sciences.

Though those wishes have not yet been realised in Switzerland to the full satisfaction of its geographers, yet there has been no second attempt at curtailing its sphere; on the contrary, in many directions it is yearly gaining a more and more complete recognition.

# CHAPTER II.

## GEOGRAPHICAL TEACHING IN THE SWISS UNIVERSITIES.

Two vital questions are as yet far from being settled in Switzerland: "Is Geography a University Subject?" and, "If it is, what is its sphere?"

Some Professors consider that, though Geography is a necessary part of the school curriculum, where its limits are to some extent defined by a utilitarian end and the capacities of child-nature, it is an impossible study for a University, where these limits are less felt. Geography, they complain, involves the half of human knowledge, depending so closely as it does on Geology, Mineralogy, Botany, Zoology, Ethnology, Climatology, Meteorology, Astronomy, &c. Besides, as Dr Früh has pointed out, the investigations and discoveries of this century with reference to high mountains and deep seas have caused the sphere of Geography to include a vertical as well as a horizontal field of work.

No man can really know all these branches of science, in the sense of being capable of furthering original research; hence, they say, a geographer must either be superficial and introduce a method of work hitherto not recognised as suitable for a University, or he must become a specialist in one or other of those sciences on which Geography depends. In the University most sciences are studied analytically; but Geography is synthetic, co-ordinating and applying the analyses of other sciences. There are some who maintain that those who have studied the individual sciences on which Geography depends should be capable of performing this work of generalisation for themselves, without the aid of special lectures. Some oppose the creation of a Chair of Geography, but yet suggest that systematic lectures should be given by the professors of various natural sciences on Geographical-Botany, Geographical-Mineralogy, Geographical-Zoology, &c. Others would banish it from the University, but would favour the formation of a distinct College for the higher teaching of the subject, especially from a commercial point of view.

The men who favour its introduction regard the creation of a Chair as but a small beginning, which, though better than nothing, is inadequate to a true development of the subject. They look forward to the creation in time of a Faculty embracing many Chairs, with what Dr Früh has called "a geocentric aim, to act as a link between the diverging ways of Physical Science and History,—to do in fact what Physiology and Hygiene do for the various branches of the Faculty of Medicine." The University of Vienna has made a start in this direction.

Even if it be granted that Geography is a University subject, we are confronted with great differences of opinion as to its sphere and aim.

In the first place, some think Ritter's idea of the dependence of Man on Nature has been greatly exaggerated, and that scientific facts have even been distorted to fit the theory: on the other hand it is urged that the men who regard Geography as a purely Natural Science are, in fact, Geologists propounding geological problems under the name of Geography. This objection is well met by the distinction which Mr Mackinder has drawn between Geology and Geography, "Geology is the study of the past in the light of the present, and Geography is the study of the present in the light of the past." I have often heard these words quoted with appreciation in Switzerland.

To sum up, in Switzerland as in England, the scope of Geography in the University is very variously conceived; but there, far more than here, it is already recognised as a University subject.

The University in which it receives most attention is that of Bern, where, 15 years ago, an "Extraordinary Chair" was founded for Geography. This became permanent eight years ago, on its occupation by Dr Brückner, who has thrown himself enthusiastically into his work, and spares neither trouble nor time in raising the standard of Geography and bringing about a fuller recognition of its worth. His time-table is as follows:—

| | | |
|---|---|---|
| First year. | 3 hours a week. | Astronomical Geography. |
| ,, | ,, | Part I. Meteorology, &c. |
| ,, | ,, | Part II. Oceanography. |
| ,, | ,, | Physical Geography. |
| ,, | ,, | Morphology of the Earth. |
| Second year. | ,, | Special study of a Continent. |
| ,, | ,, | Switzerland in detail. |

Besides these lectures, repetition lessons are given twice a week, and in winter a course on map-projections. Last winter, in his yearly course of fifteen public lectures, Dr Brückner dealt in detail with "Snow and Ice," and had generally an audience of eighty persons. Every two years, in the summer, he gives a course of lectures on Ethnography and Anthropography. His ordinary University lectures are followed by from thirty to forty men and women, who are either taking Geography as a subject for the Diploma of Doctor of Philosophy, or training to become teachers in Secondary or Superior schools.

At Bern three years' University course is necessary to obtain the Ph.D. Degree, and the candidate is examined in three subjects, one of which is taken as the principal subject.

At Zürich, when Geography is taken as the chief branch, Geology and Physics must be taken as a second branch, and either Astronomy or Botany or Zoology for the third. At Bern the Faculty is divided into two sections. 1. Philosophical-historical section. 2. Mathematical and Nature-study section. Each section is subdivided into 11 or 12 subjects, and Geography finds a place in both, though it is generally taken in connection with the science group. The candidate for this examination who takes Geography as his chief subject, writes a dissertation, over which a year or more may be taken, but which must bear the stamp of original research in some direction. The one handed in by Dr H. Walser (Bern, 1896) is called *Veränderung der Erdoberfläche im Umkreis des Kantons Zürich*, and in print fills 121 pages. If the treatise is accepted, the candidate undergoes a written examination[1], consisting of three papers, each taking three hours, and finally an oral examination lasting two hours. The students for this degree are the most advanced who attend Dr Brückner's classes, and he devotes special time weekly to advising them as to their work.

The candidates for the Diploma of Professor at Bern, which confers the right to teach in the Superior classes of the Gymnasium and Cantonal school, can select the three subjects which are required besides Pedagogy. If Geography be chosen, a treatise, for which six weeks will be allowed, must be written at home on some topic connected with morphology or cartography, as suggested by Dr Brückner. This is occasionally printed. There is also a three hours' written examination on the physical and political Geography of countries, or continents, and a short oral examination on topography, map-projections, mathematical and physical Geography. No women have yet taken this examination, though it is open to them.

Lastly, the candidates for the Bernese Diploma for teachers in Secondary Schools have only an easy geographical examination, sometimes oral and sometimes written, dealing with mathematical Geography, the World in outline and Switzerland in detail. These students do not follow all the lectures, or come to the weekly debates, which are another feature of Dr Brückner's course.

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[1] A "klausurexamen," viz. one in which no reference to books or persons is allowed.

At these debates a paper is read by a student on a previously arranged subject, and then other students are free to discuss the question. Dr Brückner conducts the debate and finally expresses his own opinion on the paper and the matter itself. Some of the subjects which have been treated this year are "The erosion by glaciers," "The lakes of France," "The oldest maps of Switzerland," "Publications on geo-morphology by William Morris Davis," "Changes of climate," &c. I was present at one of these meetings when nearly an hour was occupied by a student in reading a paper on "The limit of the forests in the regions of the Ortler." The author had previously drawn a map on the black-board to illustrate his account, and he showed the causes which determined this limit, such as height, snow-line, climate, slope and orientation of mountains, kinds of trees, &c. Nine students were present and took part in the discussion which followed.

Some of the books which Dr Brückner advises his students to study are, for the first term, the first part of the fifth edition of *Allgemeine Erdkunde* by Hann, and for the second term, that part of the same work, written by himself, on Geology, and Geo-morphology. For the third term, he prefers Wagner's *Lehrbuch*, but knows no book suited for his last term's work. He has a collection of geographical books which he places at the disposal of the students, besides being able to obtain for them the use of books belonging to the Bern Geographical Society and town library. He has made the most of the yearly grant he receives for apparatus (400 francs) and where it was impossible to purchase the wall-maps he desired, has employed an old student to make a series, by enlarging those illustrating certain physical and ethnographical facts in Berghaus' *Physical Atlas.* He has a collection of 400—500 lantern slides, many from photographs taken by himself; but he prefers to illustrate his lectures, whenever possible, with the real phenomena, and hence constantly organises excursions. I was privileged to take part in one, which I have mentioned in the chapter on excursions, and can realise a little the splendid education a series of such expeditions must afford.

Turning now to the other Universities, at Zürich, Professor Stoll lectures for one hour a week on each of the following subjects, Physical Geography, a special continent, the colonies of Europe and the distribution of animals. About a dozen students follow the course. Geography was made one of the chief subjects for the Ph.D. degree a few years ago, and already one student, Lucretia Panaitescu from Jassy, has passed this examination. Her dissertation was on "The Ethnology of the People of Roumania." In this canton the Diploma for teaching in the "Superior" schools does not include more than historical geography. Professor Stoll's interests are chiefly ethnological. He has aided the Zürich Ethnological Society and took me over the museum belonging to it.

At the Zürich Polytechnic lectures are given from time to time on "Geographical Anthropology," "The Polar Regions," "The Importance of Geographical Study," &c., by Dr Früh and other specialists. I must also allude to Professor Heim, who has done so much for Geology and at the same time for Geography. His love of studying and sketching the mountains of his country seems to have been inborn, as his first map, he told me, was published when he was twelve years old. Later he began to see how the mountain forms depended on their geological structure, and therefore specialised in this branch, at the same time cultivating and perfecting his skill in delineating mountain panoramas. He has made, and trained his students to make, the grand reliefs of mountain groups, which are to be seen in the Polytechnic Museum and elsewhere.

The great fault he finds with British students is that they do not recognise real objects when they see them, though they can write intelligent descriptions of geological phenomena; hence the stress he, like Dr Brückner, lays on out-door work.

At Freiburg there is a Chair for Geography at the University, occupied by Professor Brunhes; here, too, this subject can be taken as the chief one for the Ph.D. degree. There has not yet been time for anyone to obtain it. The lectures Professor Brunhes was giving weekly, last term, dealt with Physical Geography, Russia in detail, and the commercial Geography of Ivory.

Last year a Chair for Physical Geography was created at the Lausanne University, through the efforts of Professor Lugeon, who is Professor of Geology, and was also appointed to the new Chair. Geography is studied by candidates for the Licentiate for Natural and Physical Sciences. Professor Lugeon expects to give seven lectures a week next winter, four of which will deal with purely Physical Geography, the others with general Geography or special subjects. This University is already remarkably rich in maps, photographs, lantern slides, diagrams, &c.: for illustrating the phenomena of Physical Geography. Professor Lugeon desires to have good maps of the geological and topographical phenomena of every district in pairs on the .same scale, and has already a collection of about two hundred and fifty. He conducts his students for excursions lasting one or two days and takes with him his photographic apparatus, so that views may be taken of the phenomena to which he has called their attention. These photographs are sold at cost price to the students.

At Geneva an "Extraordinary Chair" for Physical Geography has been created, which is filled by Professor Gautier, who also occupies the ordinary Chair of Astronomy. Physical Geography and Meteorology form one of the optional branches for the Baccalaureat of Physical and Chemical Sciences.

We see, therefore, that all Swiss Universities, except Basel, allow lectures on Geography to be given regularly, and have inserted the subject as an optional branch of their highest examination. This fact, I believe, explains the different position in public estimation which Geography holds in Switzerland as compared with this country.

In England the introduction of Geography into the Higher Local Examinations of Oxford and Cambridge is a step forward, but the study involved cannot rank as University work. Although we have lectures on the subject at our two chief Universities, it is not a Degree subject; hence comparatively few intending teachers can afford to devote themselves to this study. I fear this will remain the case, until it is rendered possible for a student of Geography to obtain his degree, and as good a chance of future employment as if he devoted himself to any other science. At present, in Britain, there are many who hardly understand the word "Geographer," as it is used on the continent; for those whom we have are chiefly self-trained men and naturally few in number. If there are very few specialists in a subject, the influence of their enthusiasm and advice cannot reach any large proportion of those who teach it; thus the teaching of the subject suffers even in its elementary stages, and is likely to be deprived of its best educative possibilities. We do not desire specialists for all subjects in all schools, but we must have a strong enough body of them to influence the non-specialists.

Although Switzerland is comparatively a small country, it possesses Geographical societies at Geneva, Bern, Neuchâtel, Aarau, Zürich, and two at St Gall. This is rendered possible by the presence of special teachers of the subject; the work of these societies is not regarded as an interesting hobby for those whose tastes lie in that direction, so much as an aid for promoting the study of a subject of importance and interest to the nation.

The difference between the British and Swiss points of view strikes us also in the schools. In many British schools

Geography, even if acknowledged as interesting, is regarded as an unnecessary study, as being an inferior form of mental discipline. This was once the case in Switzerland. Now it ranks on an equal footing with other subjects, and the Swiss themselves attribute this alteration in public opinion to the growing recognition of Geography in various continental Universities.

# CHAPTER III.

## METHODS OF TEACHING GEOGRAPHY IN THE SCHOOLS.

As I have previously stated, we find in Switzerland a large number of methods of teaching this subject; a few are now generally considered antiquated and injurious; the majority represent interesting applications of the newest conceptions of Geography.

In those parts of Switzerland where education is most advanced, the text-book counts for little, the map for much, the teacher for more, and the pupil for most of all. The idea is at least as old as Socrates, but the widespread introduction of this method, as applied to Geography, has only taken place in recent years.

It is interesting to enquire why the teaching of Geography *in particular* has developed on these lines. Whilst with few exceptions all modern educators recognise the psychological law that a child's *interest* must first be awakened, and then through *self-activity* his will-power be developed into right action, Geography obviously supplies peculiarly suitable material for the practical application of this law, for it offers for consideration a logical series of connections between Man and the phenomena of Nature, which a child can be led to discover, with comparative ease, by the exercise of his own powers. Dr Brunhes says, "Formerly Geography was defined as a description of the earth; the new Geography is really the science of the earth. It is not content with describing phenomena: it explains them." This "explicative method" offers that opportunity for developing a child's mental self-activity for which the psychologist is always searching. Professor Rosier adopts this "explicative method," and shows how it can usually be joined to the "interrogative method"; he takes as a basis the child's observations on the maps and pictures placed before him, and rarely requires the "expositive method," in which the teacher, not the pupil, explains the geographical phenomena.

In the application of this method in some of the best Swiss schools, I was struck by one or two results which it has produced, besides the self-evident ones of training the pupils' powers of observation and thought. A lesson conducted in this way is oral alike for teacher and taught, and its success depends to a large extent on the power of expressing thought quickly and concisely. Language thus becomes an important factor, and the form of an answer is almost as often discussed and corrected as the matter. The teacher desires to impress the child with the importance of speech, and to train him, while he is young, to overcome such defects as nervousness might produce; therefore the child is made to stand whilst delivering an answer, no matter how short it may be, and is made to give his answer in the form of a complete sentence, which generally involves a repetition of the substance of the question. In the more advanced classes the child not only stands to answer, but is often expected to come forward in front of the whole class while being catechised, or whilst delivering quite a speech on the matter under consideration. The desire to minimise the noise and interruption thus caused, and to avoid breaking a chain of reasoning by introducing a fresh speaker, creates a tendency to give the lesson to a few pupils, rather than to the whole class. If the master is careful to choose out different pupils at different times, all are benefited in turn; and it is true that, in training of this kind, ten minutes' continuous attention is often more profitable than the same amount of time devoted to a pupil on isolated occasions; but this system is certainly a strain on the discipline of the rest, who are expected to sit still and attend.

As an example of this method, I will describe a lesson given in a Girls' Normal School at Neuchâtel, where, as the pupils were 17 or 18 years old, the strain on discipline, alluded to above, was not much felt. There were 50 girls in this class, each possessing a good map of Switzerland, which was kept open during the lesson. All of them had previously prepared the Geography of the canton of Grisons. A detailed relief map of Switzerland hung on the wall. The Professor called out a girl; she came forward to the map and indicated and named the chief valleys of the canton. She was then requested to read from the map the numbers indicating the height of the valleys at various points, and asked, from consideration of these numbers, to generalise as to the character of their slopes, and to express the generalisation as a diagram on the black-board. The line was found to slope but slightly for the greater part of the way, but to have a sudden steep upward slant towards the end. The road along this typical valley was then added, at first as a straight line, and at last as a zigzag. Another girl was then called out, to trace in detail the valley of the Rhine through the canton; she was asked why the same valley went by different local names in different parts. Before the answer to this was given, she had to be asked to read again the numbers which showed the height at different points, and to represent the valley this time as a series of steps. Then it was seen that certain steps were of a nature to render traffic with the neighbouring steps or stages very difficult; in fact, that the valley really consisted of different basins, each of which was entitled to a distinct name. A third girl was questioned as to the climate in various valleys; reading the map, she found that some, throughout their entire course, were higher than others, and concluded that the climate varied very much; then she named some of the productions capable of being grown in them. She was also asked to contrast the rivers of the Alps and the Jura; by a series of questions the following answer was elicited: "The Alpine rivers have more water, especially in summer, as they have their origin in glaciers; they are more liable to floods, and on the whole deeper; this is because they are often more confined by rocks than the rivers of the Jura." The derivation of certain names: e.g. *Via Mala* and *Maloja*, was asked, and the reason for the name given. The next girl was questioned as to the character of the mountains of the canton; she concluded that owing to the numerous eroded valleys, they must be broken up into distinct groups. Many of these were pointed out on the map by her and named. A fifth girl was asked if she considered the canton particularly important; she replied, "This canton is not very important," and was asked why. She answered that comparatively few industries were carried on there. Again she was asked to give a reason for her answer, and alluded to the drawbacks caused by the height and consequent climate of a large part of the canton. She was then requested to name the important towns, to point them out on the map, and to explain their importance. Chur and Davos were thus discussed. At this point a bell rang, and the 45 minutes' lesson came to an end. The girls were told to prepare another canton for next time.

A typical feature of this lesson was the large proportion of time devoted to the detailed study of the valleys; in fact I have often found in Swiss schools that river-basins are made the centres for the geographical consideration of a country. This is probably owing to the fact that the valleys are their chief habitable and cultivable districts.

They often divide a country into a number of so-called "natural regions" and treat each of these in detail; as a rule they pay little attention to political divisions, and they do not devote much time to dealing with the various geographical phenomena of the country as a whole. Sometimes I have heard the method of treating a country under such headings as "situation, size, relief, watershed, climate, productions, &c." described as the "old method" and adversely criticised as liable to lead to certain erroneous ideas; moreover it is far more difficult to trace out the lines of connection between the geographical phenomena of the country as a whole than is the case if a smaller and natural region be taken and considered fully. The "new method" is sometimes called "La méthode du Tout Ensemble," as all the various geographical facts of the region are discussed together, or in that order which seems most convenient at the time. The result of this method is to give the child a series of vivid pictures representing these regions in their actual condition, combined with an understanding of the mutual connections between the constituent elements of the picture. For instance, the supporters of this method argue that if all the rivers of a country are treated before the towns situated on them, or the productions grown in the valleys, one of two disadvantages must follow: either the frequent dependence of productions and of towns on rivers is imperfectly realised, or much repetition is required to leave the pupil with a distinct impression of the whole as a unity.

These "natural regions" are generally river-basins in Switzerland, especially as the connected line of a river forms an easy starting-point for drawing a sketch-map of the district; the result is that rivers are frequently treated before mountains, and this at first seems strange. In explanation of this, they would say that most Swiss children live in river or lake valleys and it is natural to walk up the valleys with them, in reality or in imagination; afterwards their attention is drawn to the mountains on each side. Further, mountain ranges have often been formed by river-erosion through a plateau (e.g. the mountains of Spain): if we always describe the mountains of a country first, a child imagines that at some remarkable period in the past all the mountains in the world were suddenly produced, and that since that time the rivers have carefully flowed between them. In the same way, it is easier to draw and describe the Rhine before inserting the mountains through which it has cut its way; but where a chain of mountains, such as the Alps, represents a true folding of the earth's crust, the matter is different, and it should be treated as a distinct "natural region." In schools at Zürich, Basel and Bern, the Alps, and especially the "massif" of St Gothard, were first described; the rest of the physical and political Geography of Switzerland was provided for in the detailed study of the Rhône, the Aar, the Reuss, the Linth, together with the lake of Zürich, the Limmat, the Rhine, the Ticino and the region of the Jura. The same method was applied to the study of Germany, in lessons I heard at a Secondary Boys' School at Neuchâtel, and in the Industrial School at Lausanne. The professor in the latter told me he had previously dealt with France in the same way, and considered this to be the only satisfactory method. I must add however, that, after the consideration of such natural regions, some masters elicit from the class, and even at times dictate, a *résumé* of the whole country, under the old headings of situation, size, &c. I think this method is chiefly confined to Secondary and "Superior" Schools, where the pupils, in their Primary School experience, have already heard something of the countries in outline, according to the old method; the masters, who are often specialists, are perhaps more anxious to excite interest by introducing a novel mode of procedure, than to bring about its universal adoption.

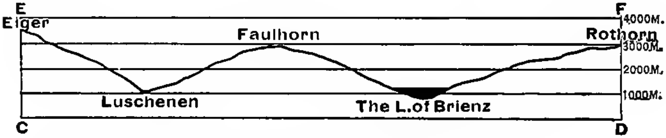
This method has received an impetus in French-speaking Switzerland, from the gradual introduction of the manuals of Professor Rosier, who has there employed it to some extent, and at Bern from Herr Stucki, who for some time was School Inspector in that city. Herr Stucki's great desire is to stimulate a child's imagination, so that a real mental picture accompanies every name employed. He complains bitterly that a child is often able to answer a question about names and situations, but lacks that true richness of mental life which depends on the possession of vivid ideas. He remarks that one of the most noble and beautiful tasks of geographical instruction is the cultivation of the child's imagination, hence we must fight against the idea that the map is all-important in teaching this subject, and employ, as well, such methods of representation as pictures and verbal descriptions. In pursuing the method of the "Tout Ensemble," Herr Stucki does not divide the country into so many "natural regions," but into the areas included in so many imaginary journeys by sea, or river, or rail, though at times the result is the same. "In order to become acquainted with Germany," he writes, "we follow the current of the Rhine; we notice, whilst going from south to north, the morphology of the land on the right and left banks, the peculiarities of the river itself, its navigation, inundation, curved course, formation of islands, tributaries, towns, political divisions, &c. With the other rivers we shall do the same and obtain a number of useful detailed ideas, and at the same time a general survey of the relief and general slope of Germany. The districts at the mouths of rivers offer us an opportunity for explaining such phenomena as a delta, dune, harbour, haff, tide, &c., for, as a matter of course, whenever a new feature is introduced for the first time it must be explained. In a similar way we are led by the Rhône, or railway-line, as for example that of Pruntrut, Paris, Havre, to and through France; by way of the Ticino and St Gothard railway to Italy; by the Inn, the Danube and the Veralberg railway to Austria. Scandinavia can be treated in outline by a voyage along the coast, and a journey from west to east. In like manner Spain; Russia requires a journey from north to south. Of course neither time nor material for representation allows us even to mention a great number of the interesting details offered by each country; what is important is to point out the most characteristic. To avoid misunderstanding, we repeat that after having given a detailed treatment of certain parts, a summary of the whole must follow as to its orographic, hydrographic, climatic, political and other conditions." Herr Stucki told me that, supposing he had six lessons to devote to a country, four at least should be occupied with describing journeys and two with the summary. I give below his sketch for the study of North America; but he does not regard this set of journeys as the only desirable ones to be followed; they are suggestions, not rules.

1. "The voyage to New York, affording an opportunity for a description of a steamer, a cable, the ocean, storms, the city.
2. A journey through the continent, including the Pacific railway, plain of the coast, the Alleghanies, St Louis, the Prairies, Rocky Mountains, and S. Francisco; and introducing Trappers and pioneer settlers.
3. A voyage on the St Lawrence and Canadian Lakes.
4. A voyage on the Mississippi, taking note of the plantations along its banks.
5. A voyage round the coasts.
6. A survey of North America and its importance to Europe."

Although Herr Stucki does not consider that the map is everything, he would train the pupils in reading it, and this is systematically done in Switzerland to a degree of which we have as yet no experience in this country, because this study demands the possession, by teachers and taught, of topographical maps of far greater excellence than are at present in use in our schools.

I was present at a lesson of this description given in a Secondary School at Zürich to a class of 35 boys, average age 14. Each boy possessed Wettstein's atlas, which was opened at the specimens of cartography given in the introduction. Attention was called to Figure 7, which represents a topographical map of a small district, with the relief shown by contour lines at distances of 10 metres. By means of these lines the master got the boys to calculate the height at various points, and also to describe in detail what the views would be like from an imaginary house situated on the slope of one of the hills delineated on the map. The different methods for representing canals, brooks, rivers, field-paths, cart-roads, highways, &c., respectively were described by the boys and illustrated on the black-board. A close examination of their maps rendered it possible for them to tell where the rock had been artificially cut out to form a road, and where it had been naturally worn away by a river into a gorge. Then profiles of parts were drawn, and a section of a supposed cutting necessary for the construction of a railway across the district. Finally the master showed a real relief, which had been made from the map by another boy in the school, by means of cutting out and fixing one upon another separate pieces of cardboard; he invited the boys to make similar reliefs of whatever districts they preferred, offering to provide them with the necessary maps and apparatus.

Another lesson at the Progymnasium, Bern, was entirely devoted to teaching boys how to draw sections on a correct scale from their maps. Here, too, the class numbered about 30, age 14. Each boy possessed a separate little map of each canton, which gave the principal mountains and their heights, and attached to each was the scale. First of all, they took their maps of the Canton Vaud, and copied the scale measure on to slips of paper. Then they were asked to measure the distance across the broadest part of the Lake of Geneva and to rule a line across the map at this place. It was found to be about 13 kilometres, and the master drew on the board a line *AB*, 13 decimetres long, to represent it, and he asked the boys what was the scale of his drawing. They replied 1 : 10,000, and this was written on the black-board. Then one or two boys were asked in turn to come to the board, and draw a line from *A* to *B* representing what they imagined might be the contour of the bottom of the lake, the straight line *AB* being regarded as the level of the water. Several curves were drawn, all descending to a distance at least equal to a quarter of the length of *AB*. Then one boy was sent to the wall-map of Switzerland, which gave the greatest depth of the lake as 310 metres. They found out that since 13 kilometres was being represented by 13 decimetres, 310 metres must become about 3 centimetres, and were much surprised at the slight curve necessary to represent the bottom of the lake. All the water between the horizontal and curved line was chalked with blue, and the boys opened their note-books to copy the diagram at a scale of 1 : 100,000, heading it, "Profil durch den Genfersee." Next, they took their maps of the canton of Bern, and were told to rule a line from the Brienzer Rothorn to the Eiger, and to measure it. This was found to be 24 kilometres long. The master drew a line *CD*, 12 decimetres long, on the black-board, and the boys reckoned that the scale was 1 : 20,000. They found from their maps that the Eiger was nearly 4,000 metres high, and vertical lines each 20 centimetres long were erected from *C* and *D* to *E* and *F*. The lines *CE* and *DF* were then divided into four equal parts, and horizontal lines ruled from *E* to *F*, and from the intermediate points respectively, to form a sort of ladder indicating the heights of 1000, 2000, 3000, and 4000 metres. Then the distances between the Eiger, Luschenen, the Faulhorn, the near and far shore of the lake of Brienz and the



Profile from the Eiger to the Rothorn, as drawn by Class I. of the Progymnasium et Bern.

Rothorn respectively were measured and reduced to the proper scale, and dots placed along the base line to mark them. Finally, the different heights of these places were read and roughly marked, with respect to one or other of the four horizontal lines, and the connecting profile was sketched in. The faculty for realising and reproducing these profiles on an accurate scale is useful, and specially possible in a country like Switzerland, where the mountains are so high that exaggeration is not necessary to make them perceptible in profile.

Not only are lessons devoted to map-reading, but also to picture-reading. By this means children are taught to realise different ways of representation, to compare the scenery of various regions, to appreciate the difference caused in a landscape by change in the point of view, and above all to make the greatest use of a picture as an instrument which partly explains and complements a map, and partly requires a map to explain and complement it. The large coloured series of Swiss scenes published by Kaiser (Bern) for use of this kind in the schools is excellently adapted for the purpose, as a little book, edited by Herr Stucki, is sold with each picture, which not only acts as a key to all the geographical phenomena represented in it, but also gives hints to the teacher how to make the most of the material thus afforded.

These methods are employed almost exclusively in Secondary and Advanced Schools; those in the Primary Schools, where the teacher is always the class-master or mistress, are naturally more common-place. The most striking feature is the universal adoption, in the lower classes of the Primary Schools, of the Heimatkunde method. This name is elastic, and sometimes is used merely to denote that the geographical syllabus for the first year involves a certain amount of instruction about the school-room, the school-building and the play-ground, afterwards the streets near the school, and finally the town and district.

The Heimatkunde method, as conceived by the best teachers, however, involves far more than the introduction of certain topographical facts in this order, and refers rather to a system for training a child in scientific observation and power of description of any object, or collection of objects, which may be within his reach. The so-called Object lesson, now well known in our own schools, more nearly corresponds to a Heimatkunde lesson than do many of the usual elementary geography-lessons on school-buildings or towns. A lesson on Heimatkunde might often be called a lesson on elementary Geology, Botany, Zoology, or History, quite as much as on Geography.

I will give, as an example, one in which the geographical aim was uppermost, and although it will involve rather a monotonous amount of repetition, I give it in order that the application of the method may be better understood. The lesson was given to a class of 30 boys and girls (ages 7—9), forming the lowest division of the Practising-school attached to the Normal school of Lausanne. As the subject of the lesson was the Terrace of the Castle, the first thing to be done was to take the class to the spot. They were told where they were going, and that they must notice the way there: whether the road was uphill or downhill, how long it took to arrive, &c. Then they were dismissed to get their hats and form a procession, four abreast. Well accustomed to these out-door lessons, for one is undertaken at least every week, they were soon in marching order, and about three minutes later were drawn up in two lines on the Terrace, in front of the steps they had just ascended. Two children were then appointed to count the steps by walking down them again, a ruler being given to another to measure the height of the step, while the rest looked on. The answers were recorded by the master in a note-book, and then he marched the children into the middle of the Terrace, and told off two to count the number of paces necessary to walk its length, and two others for the breadth.

These last two children, on returning, gave different answers; the rest were asked why. One pointed out a slight difference in the courses they had taken, but another noticed the difference in the size of the walkers, and the class realised that the tallest child covered the distance in a fewer number of paces than the other, as each pace was longer. The master took the mean of the two numbers given and wrote it down. Their attention was next directed to an iron railing along one side of the Terrace and the reason for its existence, and a description of its appearance was given by the class, one boy being appointed to count the number of separate bars which composed it. They were questioned as to what also bounded the Terrace on the north, south and east sides respectively, having discovered that the Terrace was on the west side. On the south side is a building called the Peristyle, which is the House of Parliament for the canton; a description of it was

A Lesson out-of-doors on the Terrace of the Castle given to the lower division of the Practising-school of the Normal College, Lausanne.

obtained from the class, who eagerly pointed out that the green and white painting on it proved it to be a building belonging to the canton[1]. The height of the wall on the north side was measured and the Castle briefly noticed: the steps form the east boundary. After this, the children were asked to name what they saw on the Terrace, and such replies were given as "gravel, seats, trees, ourselves," &c. The seats and trees were counted, the latter being contrasted and compared according to the character of their fallen leaves, while the master supplied the names. Finally they were drawn up in front of the railing to look at the view. The Jura mountains and lake were pointed out, and the children were asked what buildings in the town they recognised, and in what direction they were relative to the Cathedral. The whole lesson lasted perhaps half-an-hour, and then the children marched back to the school.

Next day the lesson was continued in-doors, or rather the information collected in the out-door lesson was revised, and further worked out, in a more scientific manner than is possible out-of-doors. The master had previously drawn on the black-board a plan showing the route taken from the school to the Terrace. His method was one of interrogation; the children who knew the answers held up their hands, and different ones were told to stand up and answer, irrespective of any order. I repeat questions and answers, as far as possible, word for word:

*Master.* What street are you in?

*Child.* We are in the street Cité Derrière.

*M.* In what quarter of the town is Cité Derrière?

*C.* Cité Derrière is in the quarter of the town called La Cité.

*M.* What is the chief building in La Cité?

*C.* The Cathedral is the chief building in La Cité.

*M.* Where is the Cathedral?

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[1] Green and white are the colours of Canton Vaud.

*C.* The Cathedral is in the centre of La Cité.

*M.* Name another important building in La Cité.

*C.* The Castle is another important building in La Cité.

*M.* Where did we go yesterday?

*C.* We went yesterday to the Terrace of the Castle.

*M.* What street did we pass through to get there?

*C.* We passed through street Cité Derrière.

*M.* How long did it take to get there?

*C.* It took three minutes to get there.

*M.* What have we been talking about, as far as concerns the Terrace of the Castle?

*C.* We have been talking about the situation of the Terrace of the Castle.

The Master here wrote on the black-board:

THE TERRACE OF THE CASTLE.

SITUATION.

*M.* Now will someone repeat and tell me what is the situation of the Terrace of the Castle?

*C.* The Terrace of the Castle is situated in the quarter of Lausanne called La Cité.

*M.* What is the shape of the Terrace?

*C.* The Terrace is rectangular.

*M.* What is the length of the Terrace?

*C.* The Terrace is 80 paces long.

*M.* What is the breadth of the Terrace?

*C.* The Terrace is 50 paces broad.

*M.* If two paces are equal to a metre, how long is it?

*C.* It is 40 metres long.

*M.* And how broad is it?

*C.* It is 25 metres broad.

*M.* What have we been speaking about?

*C.* We have been speaking of the shape and size of the Terrace.

The master here wrote on the black-board, below the word "Situation,"

SIZE and SHAPE, and asked for a repetition.

*C.* The Terrace is rectangular in shape, and about 40 metres long and 25 metres broad.

*M.* What bounds the Terrace on the North?

*C.* A wall and a Castle bound it on the North.

*M.* What bounds it on the South?

*C.* The Peristyle bounds it on the South.

*M.* What bounds it on the East?

*C.* The steps bound it on the East.

*M.* What bounds it on the West?

*C.* The railing bounds it on the West.

The master then asked for descriptions of these boundaries, and finally wrote on the black-board "WHAT BOUNDS THE TERRACE?" and obtained a repetition answer from a child.

In a similar way he elicited from the children, "what there is on the Terrace," and "what one sees from it," and then a description of the persons they usually saw there.

Finally the children got out note-books and copied the black-board sketch, which was:

THE TERRACE OF THE CASTLE.

Situation.
Size and Shape.
What bounds the Terrace.
What there is on the Terrace.
What one sees from the Terrace.
The Visitors of the Terrace.

A third lesson, which I need not describe in detail, was also devoted to the same subject. At this lesson attention was called to the plan, and the children were shown that, since they knew the Castle was north of the school, and in the plan it was marked above the school, that part of the plan must represent the northern part. They recalled what they had noticed, in their walk to the Terrace, on the east and west sides of the street, and found the buildings respectively on the right and left sides of the plan, which therefore represented the eastern and western parts of the plan. Various children were called out to come and trace on the plan the route taken, and to point to the boundaries of the Terrace and the objects on it. Finally they reproduced the plan on their slates, to the best of their respective abilities.

It is needless to remark that these lessons were evidently enjoyed by the children, who were kept on the alert all the time, and, in their intense eagerness to answer, showed a tendency (which had to be suppressed) to quit their desks in order to attract attention, though it rarely happened that a child spoke before being pointed out. As will be seen from this example, the amount of thought and time expended on exacting sentence-answers is very great. The master told me that these lessons were expected to combine the teaching of Heimatkunde with that of Language, and if this method is the best one for training a child to express himself clearly, the thought and time are certainly not wasted. I have sometimes felt that it led to a style of oral and written composition rather lacking in originality, by forcing the child to depend too much on the teacher for the form of the answer. This matter, however, is one which lies outside the sphere of my work, the aim of teaching children to make and describe their own observations must meet with the hearty sympathy of all.

Before I leave this chapter, I must again allude to the great differences of method exhibited in the various cantons, the only unifying elements being the Examination of the Recruits, which affects the teaching in the Primary Schools, and the work of the Geographical Societies in promoting an interchange of ideas on the subject. These societies have aided in the production of a series of geographical text-books, suitable for use in the schools of French Switzerland, which, in so far as they have been introduced, are unifying to some extent the methods employed in those cantons. Still there has hardly been time for these factors to make much impression, and, as Professor Rosier remarks in an article in the December number of *L'Ecole* (1897) "the diversity of methods which exists in Switzerland as to this subject (e.g. Geography) can be seen by glancing over Group XVII. (Education and Instruction) at the National Exhibition of 1896. The syllabuses for Geography in the Primary Schools do not differ materially, but the syllabus is but the face of the building; the interior arrangements interest us more. It is in the details of method that the differences are manifested, the divergencies, which even the manuals offer, show how complicated is the question."

In a course of lectures which Professor Rosier gave on "Methods of teaching Geography," to the Normal class at Geneva, he pointed out that in the Primary Schools the canton is the chief area studied, and for the canton of Bern, or Grisons, the area is much larger than for the canton of Geneva; so that at once a difference of method must occur. He goes on to show that the study even of foreign countries must also vary according to the canton, because in Neuchâtel and other industrial cantons, a knowledge of foreign parts is indispensable, but in the canton of Vaud, which is essentially agricultural, this is not much required.

I found the method of teaching in the towns of Neuchâtel influenced by the following facts :

1. That in this canton the women teachers are, I heard, paid far less than the men, and are in greater proportionate number than anywhere else in Switzerland.

2. The course of training in the Normal Schools is only two years, whereas in some cantons it is three, or even four.

3. The syllabuses of the Primary Schools involve, in each

class, some general as well as special Geography, and a great deal of repetition of both.

4. The number of foreigners in some classes of the Advanced Schools but partially acquainted with French, necessarily hampers the teaching.

The wealth of Canton Zürich has influenced the education there in the following ways:

1. It has rendered it possible to employ men teachers to a greater extent than elsewhere.

2. It has provided its schools with palatial buildings and an almost inconceivable wealth of apparatus.

3. It has enabled the Government to pay the expenses of teachers and pupils for school-excursions, and hence this form of education is more in vogue there than in any other canton, save perhaps Bern.

The comparative poverty of Canton Freiburg has likewise influenced the education in the reverse directions, and so have also some circumstances due to its Catholicism, which, for some time, caused it to be cut off from the new conceptions of Geography, which spread over Protestant French and German Switzerland. I was surprised to find that Professor Rosier's text-books, now so well known throughout the other French-speaking cantons, were unheard of there, while the question of language prevented their knowing much of the books in use in Catholic German cantons. The geographical instruction was contained in the reading-book of the Primary Schools, and the maps chiefly used were those of "The Christian Brothers." The canton is however making great progress.

Again, where "Home Rule" exists to such an extent in small areas, the influence which individual characters can exert is very great in each district, and one man can, in a large measure, control the teaching of a subject in his canton. Thus the methods of teaching Geography in Canton Geneva are directly traceable to Professor Paul Chaix, Professor Emile Chaix (the son of the former), and Professor Rosier. Those employed at Bern show distinctly the influences of Herr Stucki and Dr Brückner; the former, as author, as school inspector and as professor in the Normal Girls' School, has left his mark on the teachers; the latter, by raising the standard at the University, and sending out well-prepared geographical teachers into the Secondary and "Superior" Schools of the canton, has done even more for the scientific advancement of the subject.

With so many different influences at work in each of the 22 cantons, only seven of which I had time to visit, I hesitate to generalise; but I believe methods of teaching will become more uniform, as teachers acquire a more uniform conception as to the sphere of Geography and the aim of education. At present education is not so advanced in the South-eastern half of Switzerland as in the North-western, which I have taken as the chief field of my investigations.

I must also state that the method I have called the "Explicative Method" has been most widely encouraged in Canton Zürich. Whilst greatly appreciating the value of this method, and the necessity for its due recognition, I sometimes regretted that it seemed there to have largely killed the old Descriptive method, which is perhaps still overvalued in parts of French-speaking Switzerland, but manages to exist side by side with the Explicative at Bern and Geneva, to the apparent benefit of both.

# CHAPTER IV.

## SCHOOL JOURNEYS AND EXCURSIONS.

WITHIN the last few years we have gradually been realising that children may sometimes study as profitably in museums and libraries, or even out-of-doors, as they do in the class-room; but still we are very far behind Germany and Switzerland in carrying our theory into practice.

The ordinary hour's lesson is often given out-of-doors to little children for the purpose of teaching Heimatkunde, but besides this many cantons have a regular system of school-excursions and journeys, lasting from half a day to eight days, the funds for which are partly provided by the municipal and cantonal governments. As to these financial arrangements, I was given, as regards Zürich, the following account:—Every master in a Secondary School in this city, who conducts a half-day excursion, is paid five francs, and it is expected that ten excursions be provided for each boy or girl during the year, if the weather permits. Every year also an excursion lasting one day is undertaken by all the schools; to pay for this each child in the Primary Schools receives fifty centimes and in the Secondary Schools a franc. In some schools the money is not given to each child, but as a lump sum to the Director; he then arranges an excursion which, perhaps, costs each child two francs fifty centimes; those who can afford it pay the full cost, and the grant is reserved to help those who can pay only a part, or nothing. I was assured that this was done with the greatest discretion, so that the children's feelings were not hurt by it. The boys in the top class of each Secondary School in the town, and in all classes of the Secondary Schools in country districts, can go a yearly excursion lasting two days, the expenses being paid for those who need it. In all cases the teacher can claim his own expenses. The town of Bern pays 15,000 francs a year for this purpose, 100 francs being given to the top class in each Primary School to allow a long excursion to be undertaken and 30 francs for each second class, and whatever is required for the others. The canton of Vaud gives 800 francs a year to enable the top class of the Men's Normal College to make a journey of five or six days during the summer vacation, and also 50 francs to each student of the University of Lausanne, who accompanies Dr Lugeon, the Professor of Geography, on a tour lasting about the same time.

I could cite other examples, but have done enough to show that these excursions are regarded as an integral part of the system of education, and this is increasingly the case. They may be divided into different classes, according to the time involved, or the aim in view. In describing them I have taken all my examples from the schools of Bern, unless the contrary is definitely stated.

1. The excursion which only occupies the hour usually devoted to the lesson indoors. Here the aim is definite instruction in one or other of the class-subjects. The excursion consists of a walk to a certain spot, where the ordinary lesson takes place, as in the case of the lesson given on the Terrace of the Castle at Lausanne. The master of a class of boys, ages 10—11, gave every alternate geography lesson, during the first term of the school year, either out of doors, or beside the large relief of Switzerland in the Pedagogic Museum. A mistress I met was in the habit of taking her class, from time

to time, to see the series of geographical views exhibited by the International Panoramic Company in the town; then she gave a lesson on the country represented by the views. Her girls formed the highest class of a Primary School in which the Syllabus for Geography is "Europe and other Continents"; hence almost all the views, which were changed weekly, could be utilised in the lessons. Each girl brought the necessary penny to pay the reduced entrance fee, but the mistress occasionally paid for the girls herself, as a reward for good work done during the week. Twenty-four girls could see the views at one time, and it took about twenty minutes to see the series. When I went there we saw fifty realistic photographs of scenes in Norway and the Polar Seas, and of Andrée's ascent in the balloon.

2. The excursion, lasting from two to five hours, often taking place in the afternoon. Sometimes these have no aim beyond promoting social intercourse between teachers and taught, or affording the children healthy exercise. It is stated in the regulations for the Primary Schools at Bern, that during school hours a teacher, if he or she likes, may conduct the class to the skating rink which belongs to the town, and spend one afternoon a week there. Children are also taken out walks, or to swimming-baths, instead of gymnastics. The only check against the abuse of this liberty is that every teacher is obliged to write in a register the number and nature of excursions undertaken by the class, and this register is seen by the school inspector. The majority of these excursions aim at the development of the child's powers of observation; and though, according to the school syllabus, Heimatkunde is only taught for one year, yet by means of these excursions the same kind of instruction is often carried into the higher classes.

I went for one of these excursions with a mistress in a Primary School and her class of 34 girls, aged 13—14. The outing had no more definite origin than that, after much bad weather, the teacher thought it would do the girls good to take advantage of a beautiful morning for a walk and a few observations in the country. We left the school at 9 a.m.; to gain some shade, we made our way in an irregular procession, headed by the mistress and myself, to the Bremgartenwald. There we skirted the forest, always shaded by the trees, and yet on one side having a view of the mountains; for our walk took us somewhat in a circle, and we saw in turn the Alps, Freiburg Mountains and Jura. Halts were made to notice these, the girls readily pointing out and naming the chief peaks, and though the day was not clear, the Jungfrau was visible. The winding course of the Aar was also traced, and from time to time church-spires were named. Learning, however, was by no means made a burden; the girls, in broken lines of twos and threes, chatted merrily, and now and then started an impromptu song. Hat in hand, some ran races, while others gathered flowers or plaited wreaths of leaves. A few were collecting leaves and flowers in a more scientific manner, and, as they had had a recent lesson on timber, many questions were asked as to the names of the various trees. Two chief halts were made. First, by the memorial to the great geologist Studer, who died in 1890. This is an erratic block of granite which was set up by the Bernese Alpine Club; it is carved with Studer's name, and surrounded by a rail. The teacher explained that the block must have been brought by a glacier, and alluded to Studer's work. More than one girl produced pencil and paper to take notes. The second halt was at an opening in the forest, where we had a good view of the Aar and the two castles of Bremgartenwald and Reichenbach. With the first is associated the name of Rudolph von Erlach, who in 1339 led the burghers of Bern against the nobility. This fact was recalled to the girls, and the teacher promised that when a longer expedition could be made, they should visit the Castle; for the present we had to be content to see it from afar. Then we took the direct road home, and, save a few pauses to hurry up stragglers, no other incidents occurred.

3. The excursions lasting one or two days. They are undertaken once a year by every class in every school in Switzerland that I visited. These outings are primarily regarded as pleasure excursions, a sort of treat towards the end of the school year. Their educative value, apart from that inseparable from exploring new regions, depends entirely upon the master or mistress in charge. On enquiry, I found it was the custom to ask the children to write a composition on the excursion, so that they attended to anything told them of the places they saw. As the railways issue very cheap tickets for school-children, and the governments are always ready to aid the poor in this matter, quite long distances are often travelled; hence in passing through a Primary and Secondary School a child has the opportunity of seeing a good deal of Switzerland. I heard of various classes, in the Primary Schools at Bern, which were going to the Lake of Thun, the Lake of Lucerne, Basel, Grindelwald, Chillon, besides places nearer at hand. Where a class has only one teacher, the excursion is undertaken whenever the teacher likes; but if the teachers interchange, the date has to be fixed by general agreement, a holiday being granted to the whole school for the purpose. As a rule, each class goes with its teacher in a different direction from other classes, as experience has shown that the combination of many classes renders discipline difficult and instruction almost impossible.

I went for one of the excursions with the 4th class (29 boys, age 10—11) of the Progymnasium and their master. When we had all assembled on the Kirchenfeld bridge at Bern, we started to Burgdorf, by a route which involved a walk of about 30 kilometres, or nearly twenty miles. The following is a composition on this excursion written in Germany by one of the boys (age 10½), which had only one word corrected by the Master. It is typical of the best accounts written by junior classes.

*21 June, 1898.*

### *Our Excursion.*

"Already in May we thought of going for our excursion, but owing to the rain it was constantly put off. On the 13th of June we had fine weather and therefore our teacher told us we should make the excursion the next day. At 5 a.m. we met on the Kirchenfeld Bridge. When everyone was on the spot, we marched to Ostermundigen. There on a tree we saw a stork's nest and four storks in it. After that, our way lay through the following villages,—Stettlen, Sinneringen, and Boll. Not far from there we came to Utzigen, where is a castle which belonged to Herr Von Daxelhafen. Now it has been turned into an establishment for poor people. A short time after, we arrived at the Wegissen, where, in a beautiful corner of the forest, we ate the food we had brought with us. There was not much view, because the sky was already overcast, only the hills of Emmenthal and the chains of Stockhorn were to be seen. After having sung a few songs, we went down to the valley of the Biembachthal, and about an hour later reached Oberburg, but in rather a wet condition. There a good dinner awaited us. It consisted of soup, smoked beef, potatoes, beans, and two pieces of cake. After dinner we went in front of the house to play, but as it was raining we went back into a room. After playing a long time, we walked through the rain to Burgdorf. There we visited the Knight's hall, where we saw coats of mail, swords, lances, battle-axes, halberds, prettily painted targets and all kinds of instruments of torture. Then we went to an inn, where we had bread and cheese. At ¼ to 6 we had to be at the station. The train soon arrived. We got in and reached Bern safely at ½ past 6."

I must mention that the Knight's hall is the room in Burgdorf castle in which Pestalozzi held his school, and which is now turned into an Historical Museum. The expenses for the day, for food, railway fare and entrance to the museum, came to two francs each.

As far as I know, there is only one school in Switzerland, that organises excursions with anything like the detailed care and definitely educative aim, described by Miss Dodd in "The School Journey in Germany"; this is the private school of Dr Beust at Zürich. Even there the excursions rarely exceed one day. This school consists of 90 boys and girls, ages 8 to 14—15, arranged in eight consecutive classes. The father of the present Dr Beust introduced the custom of regular excursions, which were made the basis for the production of the maps and reliefs which have made the school so famous. The present Dr Beust aims at carrying on the school on the same lines, but owing to a change of staff, the excursions were not typical of the usual method during the time I was there, so that I did not accompany them. Generally from six to eight excursions are undertaken during the summer term. In the syllabus of the school there is an account of the observations which the pupils have to make during the excursion. They are written out at home from notes taken on the journey and include remarks on the Meteorology, Geology, Geography and Natural History of the districts visited, with observations on the people met with, their occupations, buildings &c. and any incidents of the excursion.

Dr Beust has written a paper on the "Pedagogic School Journey," and in this he states that long experience has caused him to pay great attention to the following points in organising a school-excursion, namely,

1. "The place to be visited must be carefully chosen with regard to the weather, the methods of getting there, and the special aim of the excursion.

2. The distance to be walked should not exceed 22 kilometres (14 miles) for children under 13, nor should the time of the outing exceed twelve hours.

3. The children should be told what food to bring with

them, and should eat this out of doors and not in an inn, or time is wasted, and the children may consider meals as the principal events of the excursion.

4. The master should have gone over the exact route beforehand.

5. The master should take with him a good topographical map, on the scale of 1 : 50,000, of the districts visited, a watch, a compass, a railway time-table, a whistle, and simple remedies for such sicknesses or accidents as may occur.

6. The parents of the children should be told the day before what route will be taken.

7. The children should be shown this route on the map, told what objects to look out for, and spoken to as to the behaviour expected of them.

8. The master should see that they possess strong shoes, and, unless the weather is very hot, wear woollen clothes.

9. Besides food, they should be told to bring a flask for water or syrup, but be forbidden to bring wine. Each child should bring a tin case in which to place objects collected, also pencil and paper for taking notes.

10. The weakest children should be kept in front, and a few strong, responsible ones placed as rear-guard, to see that no one lags behind.

11. The children should be told, in collecting objects, not to take things in a wanton fashion, nor to injure plants, or torture insects.

12. When the children sit down to take a meal, the master should make them put on jackets and coats, if these have been taken off for the walk, and should be careful from what streams they obtain water to drink.

13. Ample time should always be allowed for catching trains or steamers, the walking powers of the feeblest, and not the average child, being considered. Children often take double the time of an individual grown-up person, even if walking steadily, as large numbers necessitate some delay.

The pupils must also be impressed with the importance of punctuality.

14. The hour of return should not be late, and the master should be sure that every child knows his way home from where the party breaks up, or someone should be appointed to meet him.

15. Teaching is required to read landscapes as well as to read maps; and the master should therefore utilise the time in the train, as well as *en route*, for this purpose.

16. These journeys must be gone over afterwards in school. Verbal accounts should be given by each child of what he noticed, and then he should be shown how to classify these facts and arrange any objects he has collected. Drawings and maps must be made to illustrate the excursion, and, where possible, reliefs.

Dr Beust sums up the advantages he thinks are obtained from such excursions, as:—

1. The bodily development is furthered.

2. The pupils learn self-denial and gain self-confidence. They obey, not only as a habit, but because they recognise the reason of commands. In time they learn also how to set to work promptly and seriously on whatever is necessary.

3. The pupils' powers of observation are definitely trained and developed.

4. The knowledge gained in school is completed and corrected by the experience of life.

5. The children learn to value organisation.

6. The excursions afford an opportunity for the teacher to learn much respecting the character of the pupils.

7. They offer the best possible method for really understanding a topographical map, that is, the repeated comparison of the formation of the surface of the earth with the map.

Dr Hotz also lays stress on this last point: he says, "By giving a topographical map to each pupil, that he may read it on the ground itself, we accustom him to make use of the map and to understand it fully. The map is the basis of geographical knowledge...and only he who knows his native country can love it well and heartily."

4. School Journeys lasting from 3—10 days. As far as I know, these only occur in the upper classes of certain Gymnasiums and the Men's Normal and Commercial Colleges. They are not as a rule undertaken by Girls' Schools, partly for the reason given in my introduction and on account of other difficulties of organisation, partly because the governments offer no pecuniary aid to girls. The boys who take part in them are generally 16 years old or over. The aim seems to be to give them some general experience before they enter the University, or begin earning their livelihood. These excursions form a happy and beneficial conclusion to their school career, and serve to give them that sense of individual responsibility, and of respect for the commands and wishes of others, which they will need in order to become harmonious workers in the world.

About 45 years ago, a teacher of Geography, Herr Meyer, left a fund to the "Real School" at Bern, for the purpose of carrying on the yearly excursions he used to organise with the boys,—the expenses of which he had practically borne himself. When the Real School was amalgamated with the Gymnasium, the fund was devoted to the top classes of all sections. The government of Bern yearly adds 2,000 francs to the interest on the original sum of money, making a total of 4,000 francs per annum. This money at first sufficed to give the boys in the top classes a journey of 12 days in length, and in certain lower classes one of 5 days. But now that the number of boys in each class has increased, the money only suffices for a long excursion of 8 days and a short one of 3 days. The boys have to be divided into sections of not more than 12 in each, and two masters accompany each section. Good conduct is a stipulated condition for joining the party. About 9 francs a day is allowed for each person:—if travelling or hotel expenses mount up to more in a day, the party must either agree to pay the excess, or cut short the journey. Each boy has the chance of going for the short journey one year and for the long one another year, but he may not go a third time. It has always been obligatory on each boy to write out an account of one of the days. Lots are drawn at the journey's end as to which day each boy must describe, and of course some days are described more than once, and each day at least once. These accounts are written during the rest of the vacation, and are overlooked by the masters who have accompanied the excursion. The boys buy paper of uniform size and copy these accounts, taking pride in illustrating them; finally the papers are bound together and placed in the school-library. I looked over several of these volumes, which form a series of interesting albums. Sometimes the accounts were written in verse, and they were all adorned with careful maps or illuminated titles, as well as with paintings of the flowers found *en route*, drawings of the chief places of interest, and even sketches of the party and their doings. I heard that boys, long after they had left the school, came back from time to time to look over these albums, recalling the past days and describing them as among the happiest experiences of their lives. I give below the route taken by one section in 1897 for the 8 days' journey, so as to give an idea of the wide field covered, and the amount of practical geographical knowledge which the boys must have acquired.

"Section I. consisting of 10 pupils of the Oberprima and of the Prima Litterar, under the guidance of Herr Guggisby and Dr Walser (Professor of Geography). 1st day. By rail to Spiez, carriage to Kandersteg, on foot to Schwarenbach. 2nd day. The Gemmi Pass to Leuk-Susten, by rail to Zermatt, ascent to Riffel Hotel. 3rd day. Ascent of the Gornergrat and Hochtaligrat. Descent to Hotel Riffel. In the afternoon to Unter Theodulhutte. 4th day. Ascent of Breithorn, descent over the Theodulpass to Val Tournanche. 5th day.

On foot to Châtillon, by rail to Aosta, by carriage to Morgex, on foot to Cour Mayeur. 6th day. Through the Val de l'Allée Blanche over the Col de Seigne to Hotel Mattet. 7th day. Over the Col des Fours and Col du Bonhomme to St Gervais. 8th day. On foot to Cluses, by rail to Geneva and Bern."

Since 1892, the top class of the Men's Normal College of Lausanne has gone a four days' journey every year. In 1892, they visited the Grimsel, Rhône Glacier and Sion. In 1894, the exhibition at Lyons. In 1895, Chaux de Fonds and Basel. In 1897, an account of the journey was written by a student and published in the Pedagogic Journal called "L'Ecole," but it is too long to be reproduced here.

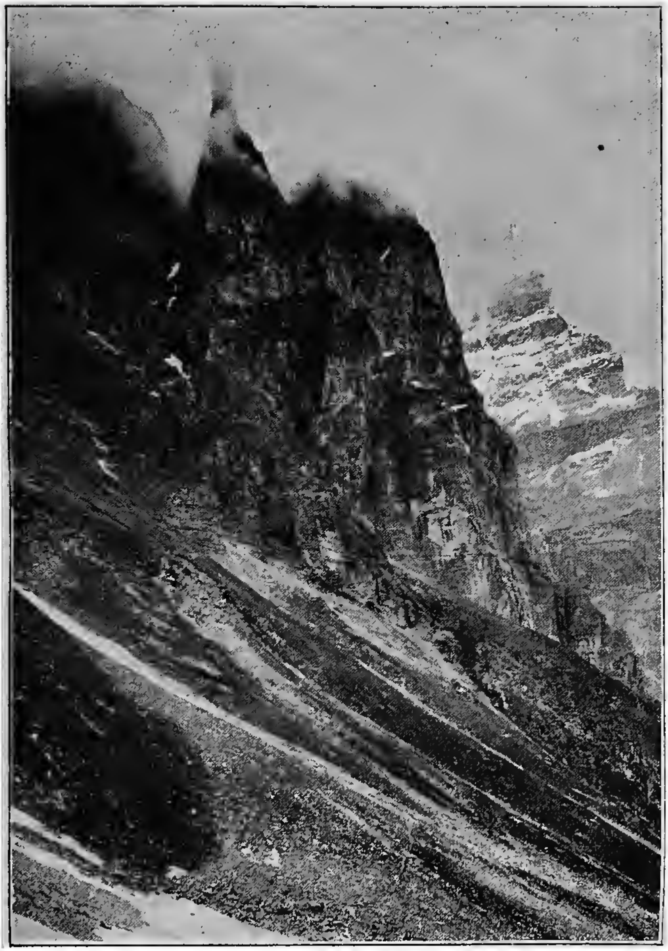
While I was at Neuchâtel, 100 students of the Commercial College, with four Professors, were away on a four days' excursion round Chamonix. More than once I met parties of students on similar tours, who appeared to be making the most of their limited time, seeing all the principal sights of the town, but evidently doing it as a matter of serious business, rather than pleasurable excitement. Most attended to what the professors told them of the historic associations connected with the chief buildings and took notes meantime.

Instead of going a long school-journey, the top classes of the Real School and Gymnasium at Basel are sent to a large house, beautifully situated on the Glarus Alps, from which they make their daily outings. The originator of this plan is a Herr Glatz, who for a long time organised excursions with the gymnastic clubs, and later founded the "Ferienheim" Society, which built the house with a little aid from the government. The house contains 60 bedsteads with mattresses and woollen coverlets, chairs, tables, cooking utensils and useful tools. The work of the house is carried on by the boys themselves, under the directions of Herr and Frau Glatz;—if they desire such luxuries as pillows and sheets they must bring them themselves. There is plenty of good water close at hand, and milk and cheese are easily obtainable from the neighbouring châlets, but most provisions have to be fetched by the boys from Niederurnen. They reckon it costs nearly two francs a day for each boy, but the Society and government pay part of the expense, so that, though each boy pays something, it is not the full cost of his keep in addition to the railway fare to and from Basel. After a fortnight, a fresh batch of 60 boys is sent. The Society is anxious to let the house for similar purposes to other schools, when not occupied by the schools from Basel, and has already done a little in this direction. This system has less to do with the teaching of Geography than the ordinary school-journey, but as the boys are always accompanied by five or six professors, and the excursions are organised explorations of the neighbourhood, they cannot fail to reap benefit in this direction, as well as in others which are more evident.

5. Excursions and journeys undertaken by students at the University. These differ from those I have been describing, in that they have as their aim the definite investigation of phenomena connected with only one science, or one or two branches of a science, and the idea of general education is subservient to that of special instruction.

As I have already said, Dr Brückner regards excursions as a necessary part of his course, and though during the term they have to be limited to one or two days in length, in the vacation he goes for a longer time with his students. He very kindly allowed me to accompany him and his students on an expedition to examine the morphology of the district of the Napf, with special reference to the formation of the valleys. According to his usual custom, he procured the sheets of Siegfried's Atlas, illustrating the course of the excursion. These he distributed to us, for use, not only during the day, but for the following week, to aid in writing out an account of what was noticed. We took train to Trubsachen at 6 a.m. and during our walk up the valley of the Trub saw examples of "eroded terraces," "accumulated terraces" and "terraces of denudation." We dined at the hotel on the top of the Napf, then walked along the crest of the range to Schinealp, and returned to Langnau station after a walk of about 45 kilometres or nearly 30 miles. The account which I wrote of this expedition was handed in with those of other students, and from Dr Brückner's criticisms I formed some idea of how much was to be learnt from this method of study.

Another day I went on an excursion with Dr Heim, 26 men students and one lady, where the aim was a geological examination of the neighbourhood of the Lake of Lucerne, but a good deal of geographical information was conveyed at the same time. It is in fact impossible to separate the two, when out on these excursions, and an attempt is made to emphasize their connection, rather than to distinguish between them. The students of the geological and geographical courses often have excursions in common and, whichever aim predominates, the scientific value of both is regarded as equally important. On this occasion the excursion lasted two days, and would have been longer but for bad weather. From Zürich we took train to Goldau, and there heard Dr Heim's description of the terrible landslip which occurred in 1806, the result of which we saw all around us. We started for Seewen, after halting to examine the rocks, specimens of which the students knocked off with their hammers. At Seewen we dined, and then walked to Brunnen and caught the steamer to Gersau. During the walk from Gersau to Vitznau the maps were carefully studied, and the capes round the lake and surrounding mountains localised. The professor is known to be fond of suddenly demanding a memory map of the Lake of Lucerne as a test of how much the students have used their eyes and maps on such a tour, so all were most attentive to his explanations, and afterwards watched him draw a profile of the mountains opposite us at Obnass. At Vitznau another steamer awaited us to take us to Buochs, the last stage, the walk to Stanz being rapidly accomplished in the closing darkness of a rainy evening.



Photograph illustrating erosion. One of a series taken by Professor Lugeon whilst out on an excursion with his students in Canton Valais.

We paused in front of the monument of Arnold Von Winkelried, before turning into the Engel Hotel, where we were glad to sit down to supper at 9 p.m. After supper, a student offered the professor his sketch book, and a box of coloured chalks; immediately he set to work to draw a profile of the mountains from north to south, showing the direction and nature of the strata from Lucerne and the Rigi, past Buochs, Brunnen, the Axenstein, Sissikon, Tells Plate, and on to Fluelen. He gave also, in metres, the depths of the various strata, and showed by means of the table-cloth how the rocks had been folded to form the ranges. The next day we took steamer from Stanz town to Lucerne, and had the benefit of seeing the Glacier-Garden with the professor, who has written on the origin of the phenomena to be seen there. He also explained the large reliefs exhibited in the Châlets, before we took train to Rüschlikon, on the Lake of Zürich. There we examined the results of a landslip, which had taken place a few days before, causing six metres of the shore and a barn to disappear into the lake. We were placed in boats and rowed along the shore, comparing it with detailed survey-plans of the district, the professor's opinion being consulted as to how this landslip happened and what other parts were likely to go next. At last we took leave of the professor, who was detained there on business, and made the return by steamer to Zürich.

I might describe another excursion I went with Professor Lugeon, of Lausanne University, and a party of students, into Canton Valais, to the Pisse-Vache Cascade, and Gorge du Trient, which was rendered especially interesting by the photographs he took *en route*, but I have said enough to show the lines on which these excursions are conducted. The character of these is also far more familiar to the British public than those relating to schools.

I have stated that the educative aim of school-excursions is general rather than special, hence they differ from those of the Universities, but I must except some undertaken by Professor

Pitard of the Geneva College. The case, is, I believe, unique, being due entirely to his individual efforts, and regarded as quite outside the ordinary college work and excursions; so I prefer to mention them now instead of with the typical school-excursions. They only concern a few of his oldest pupils and not a whole class. With five of these (age 17—18) Professor Pitard has attempted to do some really original research work in Geography. In *Le Globe*[1], tome VII. 1896, he publishes an account of a series of excursions they made for a scientific examination of the caves in the Salève. First of all, by means of simple instruments, they succeeded in making correct plans, sections and models of the interior. They made a series of observations concerning the temperature of the caves at different seasons, and also as to the zoology, vegetation and prehistoric remains that the cave exhibited.

The idea is excellent, and I hope it will be further introduced into the schools. I would not have it supplant the kind of excursion I have described as already existing, but I believe there is a field for both, and that the methods of general and special training would be mutually benefited thereby. If the children have been over a certain area, with their eyes open to notice everything, the knowledge thus gained of the topography of the ground alone would help them in going over the area a second time in pursuit only of phenomena of one kind, or from a special point of view. On the other hand, a little detailed work would, I think, tend to make them all the more careful in their general observations.

With reference to these school excursions, I also wish to remark that teachers cannot be too careful in impressing on children that good manners are expected of them out-of-doors, as well as indoors. I have heard complaints that these parties sometimes become quite a nuisance to other people, from the rough behaviour of the children. It is natural to wish the children to be happy and give vent to their feelings, and strict discipline is difficult, but I think the lasting pleasure is not lessened, when care is taken that they do not interfere with the pleasure of others.

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[1] The organ of the Geneva Geographical Society.

In conclusion, I can only state the interest I feel in this growing tendency to carry education outside the class-room walls, and whatever may be the faults pointed out in the execution of the system at times, it is only by means of experiments that attention can be directed to it, and the best methods discovered of developing and perfecting it.

# CHAPTER V.

## MAP-MAKING.

THE importance of map-study is recognised and enforced in Swiss schools to a greater extent than is usual in this country. Public opinion is with Dr Brückner when he says, "The map, not the text-book, forms the basis of study;" but I am not sure that teachers entirely agree with Rousseau, who considered his hero, Emile, superior to other pupils, because "They know their maps, he makes them."

In German-Switzerland many teachers do not allow children to spend time in copying elaborate maps at home; this is partly because it is injurious to a child's health to do much written work in the evening, and partly because map-drawing may become very mechanical, and perhaps even falsify the pupil's idea as to what Geography really is.

Professor Guex, describing the geographical work of pupils shown at the National Exhibition held at Geneva (1896), notices a decided diminution, as compared with previous occasions, in the number of elaborate maps shown, and adds, "This is well; it is not our mission to form little cartographers." He grants, however, that it is useful to fill up blank outlines, or to make sketch-maps, which help a child to understand scale, or to read a map; if these sketches are learnt and reproduced from memory, the teacher can ascertain whether the child remembers geographical forms and the positions of places. The majority of maps that I have seen in the pupils' note-books are sketch-maps copied in class from the teacher's drawing on the black-board; sometimes they are completed and inked over at home. These sketch-maps were generally of natural districts,—often of parts of a river-basin; they were drawn without lines of latitude or longitude, or any arbitrary scheme of construction-lines. Both in drawing on the black-board, and in copying on paper, teacher and taught indicated mountain ranges by a simple line, rendering it distinct, either by using a coloured chalk, or by turning the pencil or chalk on one side, so as to produce a thicker line than elsewhere. Hatching, as a method of mountain-representation, is generally discouraged, as tending to waste time or render a map indistinct. Public opinion would be opposed to published maps adopting this linear mode of representation, as it is felt that school wall-maps and atlases should be examples of the best and most usually recognised methods of cartography.

These sketch-maps are not generally reproduced from memory by the whole class, but those pupils who are called upon to repeat what they have learned are expected to illustrate what they say on the black-board. For example, one boy is questioned as to the course of the Rhine from the Lake of Constance to Basel, and draws a line to represent this; another marks in the cantons which touch this part of the Rhine, &c. I have, however, in my possession a complete set of memory-maps, done during one lesson by a class of boys (average age 15) in the Cantonal College of Lausanne. These maps represent the course of the Rhine from its source to Basel, with its tributaries and the lakes they connect,—that is, the greater part of the hydrography of Switzerland; they are marvellously correct. Their teacher, who is also the Director of the College, believes strongly in the use of exercises of this kind, only he insists that maps, whether copied or from memory, should be done on loose sheets of paper and destroyed after correction, lest pupils should look at them afterwards, and thereby become accustomed to inaccuracies.

During a revision lesson, pupils will sometimes copy a map on to the black-board, if they cannot do it from memory. A class of boys (age 11—12), in a Primary School at Zürich made a map of the Canton in this way. One boy pointed to the political boundary on a large wall-map of the Canton; another, with his finger, traced on the black-board where he thought the line should be drawn; a fourth followed this invisible trace in chalk, unless the master corrected the boy who had traced it. Then other relays of boys were called out to draw the lakes, the tributaries, the mountains and towns, and comparison was made with Brungger's relief. No names were written on the black-board, but coloured chalks were employed to represent different features. The class appeared eager, interested and well accustomed to this method of work.

Although I had no opportunity of seeing maps drawn by pupils by means of construction-lines, I was assured by several teachers at Neuchâtel and Geneva that the system described and illustrated in Professor Rosier's series of text-books had been found very useful by them. This method resembles that known with us as Swinstead's system,—a rough outline of the country constructed by straight lines. Rosier's lines, however, bear a certain relation in length to a standard base-line, which is drawn, so that the whole map is constructed on an intelligible scale. Dr Stadler, of the Höhere Töchterschule, Zürich, also advocates the occasional use of geometric figures: he is, I think, the only teacher I have met in Switzerland who would introduce a few lines of latitude into sketch-maps. He thinks these are useful for determining climate, but those of longitude he would discard. For example, he told me that, in drawing Spain and Portugal, he would rule a line for latitude 43°, and then one below for latitude 36°, thus deciding roughly the size of the drawing he would make. Between these he would

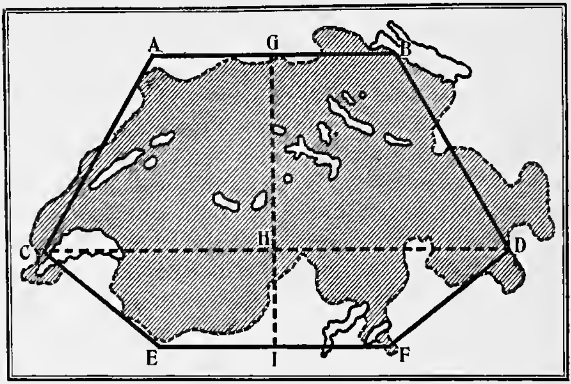


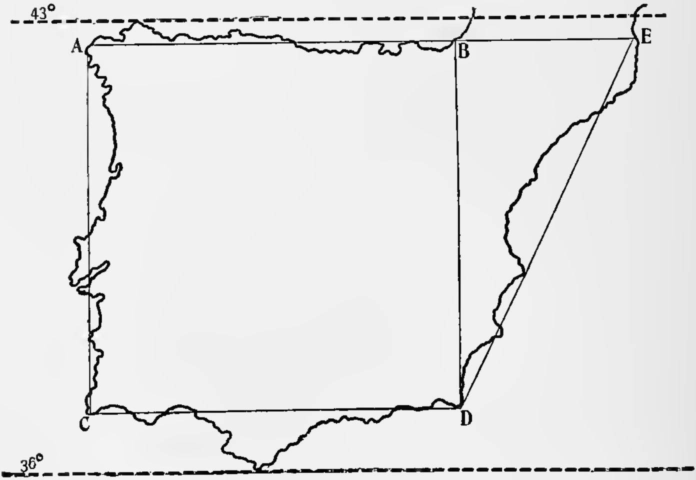
Diagramme pour la Suisse. Echelle: 1/4800000.

$AB=1$ $CD=2$ $EF=1$

$AG=GB$ $CH=HD$

$GH=5/6$ $HI=2/5$ $EI=IF$

Showing M. Rosier's system for Map-drawing.



Sketch-map of Spain according to the system of Dr Stadler.

construct a square, *A*, *B*, *C*, *D*, and produce *A*, *B* for a third of its length to *E*, and join *D*, *E*. Then he would fill in the contour of the country, but without troubling about small details. It is hardly worth while to employ such schemes for a rough sketch of a natural district, which has no defined boundaries, and as this sort of map is increasingly made, instead of that of an isolated country, the employment of construction-lines and discussion as to which system is best are dying out in Switzerland.

The matter has been carefully entered into by Schmid, who describes six different systems of construction-lines, which are supposed to aid the pupil, and prevent the necessity of drawing the lines of latitude and longitude in the usual way. They are as follows:—

1. The map is drawn by means of a network, formed by altering all the lines of latitude and longitude from curved to straight lines. Kirchhoff has supported this method, but Professor Rosier believes it is better to adopt an entirely arbitrary system, rather than run the risk of conveying false impressions.

2. The lines of latitude and longitude are ignored, and a network of squares is ruled over the map and paper. I have seen maps which had been made in this way in a girl's book at the "Superior" school of Lausanne, but was told this system was now discarded.

3. One or two lines of latitude or longitude are retained as a general guide and the rest are ignored: the map is drawn freehand.

4. Concentric circles are drawn over the map around the chief centre of interest, and some radii are added. This is copied on to a piece of paper and then the map is completed. The idea is Matzat's and is based on the theory that the position of most places is determined by the compass; hence a compass-form is particularly suited for map-making. I have heard that, for certain districts, such as the surroundings of a town, it is found very useful.

5. A straight line is drawn, and side lines are added at right angles, of such length and in such positions that the ends of the lines, when joined, give a skeleton form of the outline desired. This is the system used by Professor Rosier.

6. The form of the country is approximated to a geometrical figure, which is drawn as an aid to copying. The idea is very old, and was revived by Herbart and Ritter. If this is pressed too far, and very complicated groups of figures required, it may become a burden and not an aid. Schmid rather inclines to this system, but feels that each teacher must employ the means experience shows him is best suited to the capacities of his class, the great thing being to encourage map-making by any means rather than have it neglected.

He desires that children should be practised in translating maps into landscapes, and landscapes into maps, and that sketching from nature, as well as map-making, should be taught in connection with Geography. It is interesting to see that already a little has been done in this direction in Canton Grisons, where the drawing for the lower classes is purposely arranged to aid the Heimatkunde lessons. In classes II. and III., where the children study the neighbourhood and learn the meaning of a hill, an island, &c., they are obliged to represent these in the drawing lessons, besides such other things as might strike them in their walks, bridges, boats, a castle, plant forms and certain tools.

I have a note-book on Heimatkunde, filled by a boy (age 10) in a Primary School at Zürich, which is illustrated by the following diagrams and pictures, copied from the black-board, as part of the instruction in drawing as well as Geography.

Plan of our schoolroom (scale 1 : 50).
Plan of our school-house (scale 1 : 200).
Plan of our gymnasium (scale 1 : 150).
A compass.
Plan of the school buildings and playground (scale 1 : 325).
A section through a street, showing gas- and water-pipes.

A target which soldiers use for practising.

A picture of the basket into which criminals used to be put at Zürich to be ducked in the lake.

A wheel (for torture).

A steam-engine.

Picture of a castle.

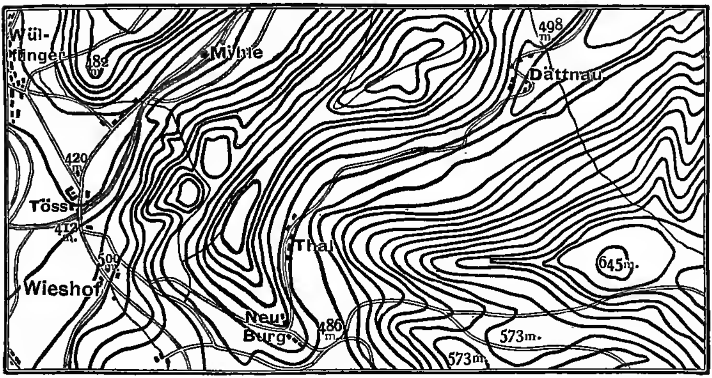
Profiles of various hills and plateaux.

The drawing of sections and profiles is very common in Switzerland, and encouraged by the best authorities. In my chapter on Method, I described how the drawing of profiles to scale was taught, but more frequently these drawings are made hastily, to illustrate certain points in a lesson. I suppose there is no one in Switzerland who has had such life-long practice in drawing mountain panoramic profiles as Dr Heim,—no one who can so quickly, without any measurements, indicate a number of peaks, in right relative proportion and position. He told me that when drawing he never thought of the horizontal distance of a mountain from other peaks, or of its proportional height, but of the degrees of the angles formed by drawing imaginary lines connecting the tops of the various peaks, with horizontal lines through the same. Naturally he laid stress on continual copying from nature. In his pamphlet on "Seeing and Drawing" he insists that children must be regularly taught how to *see* things, and moreover to *understand* them, before they can draw.

At present there seems to be rather a sudden jump from a plan of a room or a house, bounded by straight lines, which the pupil draws more or less from his own observations, to the map of a country, introducing the irregular lines of streams, hills, &c., which the pupil copies in the class-room. As soon as a master draws a finished map on the black-board, or a bought map is shown, the child naturally concentrates all his energies on copying it exactly, and does not think about the real landscape. Though the stage of copying from maps, instead of from nature, must be reached some time, I would urge its delay till the idea of a topographical map, as well as a plan, has been realised by practical experience, wherever this is possible. Plans which are not copied, but which are made by little children from their own measurements and observations of a room or playground, have a true, educative value. I only wish the same method was pursued with reference to maps of a district in the country. As soon as a child has grasped what plans and scales are, he should be taken to the top of a hill or tower, and allowed to express on paper, as far as he can, the relative positions of the chief objects he sees and the roads connecting them; this would, I believe, be more profitable than drawing plans to scale or map-copying in the class-room. The drawing of plans to scale, when the area is extended beyond a room, is at last tedious and mechanical for young children, especially as it is impossible to obtain a bird's-eye view of the interior arrangements of a school building, so as to realise the relative position and proportion of the parts. I have noticed, therefore, that plans of extended areas, if made to scale, are practically thought out and drawn by the master, unless the school is a private one, as Dr Beust's, where special arrangements can be made to obviate this.

Hitherto I have spoken only of drawing maps, now I wish to discuss the question of making reliefs. I must explain that I use the term "relief," as it is used in Switzerland, for a raised model, and "relief-map" for a flat map, coloured or engraved to represent relief.

The making of reliefs in schools is certainly declining in Switzerland, along with the elaborate map. In several schools in Zürich I heard that some years ago reliefs were regularly made, but that now it was considered a waste of time for most children, though quite desirable if a boy chose to do that sort of work out of school. The systematic making of reliefs is now confined, I believe, to the school of Dr Beust, from which this idea spread to other schools. I went to this school to examine the system, and found the reliefs were invariably made of pieces of cardboard, cut out according to the contour-lines on a topographical map, and glued in superimposed layers. The whole was fastened on to a board, which was covered with a map of the area required. This board was rarely a foot square, but as the area to be represented was generally small, and cardboard of different thicknesses is obtainable, it is not difficult to render the relief correct in vertical as well as horizontal scale. In the lower classes, each child is given copies of the various layers, and has merely to trace these round, cut them out, and superimpose them on the little printed map, which is also given to him. In the upper classes, the outlines of the layers are sometimes printed on cardboard given to the children, and sometimes they have to copy them from the map. They are left pretty much alone in the work of cutting these out, arranging them, filling in the lines to indicate the rivers, and any names, and then colouring or varnishing them. The late Dr Beust had the necessary contour-printing done, for the manufacture of maps



Flat copy of a Relief made by cutting out and superimposing pieces of cardboard. The contour lines represent distances of 10 metres. The original Relief, which was made by a girl in the Höhere Töchterschule, Zürich, measures five and three-quarter inches by three inches.

of districts often visited by the schools when out on excursions. I came to the conclusion that, to understand the significance of contour-lines, the making of one of these reliefs is useful, if not essential; but beyond this the work affords rather a manual than a geographical training. As I have before stated, I was very sorry not to see the geographical work carried on according to their usual methods. Also, as I was at Zürich at the beginning of their school year, most of the apparatus made by the pupils had been carried home at the end of the previous term. I believe that less is now done in relief-making than was formerly the case.

I cannot remember that I saw, in any Swiss school, a relief in sand, in clay, or in any species of plaster, though doubtless some exist. When I did enquire about such reliefs I was told that they were not made,—either because of the practical difficulties, of lack of time, and the complications in discipline which might result, or because such reliefs are sure to be inexact and exaggerated, and hence convey false ideas to the pupils. I do not altogether see the force of this last reason. Certainly a wall-map or atlas cannot be too correct, and it is perhaps dangerous to place before young children such a map of the world as that on Mercator's Projection; still there is a value in a child's plan of his surroundings, or attempt to copy a map, though the result is bound to be incorrect. Similarly, though a published relief is dangerous, if the height is exaggerated, yet it may be very useful for children to attempt to model a bit of the neighbourhood quickly and roughly, or to express a map of a country as a relief, for it forces them to read it carefully. If correct models are constantly kept before the children, I do not think they conceive wrong ideas from making false, or rather, incomplete representations of their own. A child who exaggerates the relief of a country five hundred times has at least grasped the idea of relief though not of proportion; until this is explained to him he is working incompletely rather than falsely.

# CHAPTER VI.

## APPARATUS.

THE schools of Switzerland, especially those of Canton Zürich, are remarkably rich in apparatus, and most of those which I visited had a museum of objects bought by the government for use in teaching. Sometimes past pupils have sent gifts of curiosities and photographs to these museums, but otherwise they are not collections made by the children themselves. The pupils keep in their own homes such collections as they are encouraged to make, as their value lies chiefly in the training given to the collector.

In a combined Primary and Secondary School at Zürich, I found the following kinds of apparatus :

1. Large collections, classified as follows :—Stuffed animals, birds, fishes and shells, pressed flowers and specimens of timber, varieties of rock and fossils, raw products, such as varieties of grains, nuts, wool, cotton, &c., industrial products in all stages of manufacture, relics from the Lake Dwellings.

2. A magic lantern, microscopes, thermometers, barometers, compasses, and apparatus for teaching Physics.

3. A tellurium, a slate globe, two ordinary globes, each one and a half feet in diameter, and a large one, which in its

stand was over five feet high. It is published by Kiepert (Berlin, 1883), and is on a scale of 1 : 16,500,000.

4. Three reliefs of Switzerland, including the excellent one by Brungger, scale 1 : 515,000, the relief of the Jungfrau group of mountains by Imfeld, and of Palestine by Beck.

5. The series of wall-maps published by J. Perthes (Gotha), besides some by Kiepert and Keller. The 25 sheets of Dufour's map of Switzerland, each mounted separately. The 30 sheets of Siegfried's Atlas, which cover the Canton Zürich and neighbourhood, similarly mounted, and a series of eight maps illustrating the history of Switzerland.

6. Many series of pictures, photographs and slides, illustrating landscapes, useful animals, commercial products, types of architecture, races of people, &c.—too many in fact to mention; Holzel's series of pictures of geographical phenomena and Franche Schmid's series of Swiss Scenery are in almost every school I visited.

Each year the teachers write down what articles they wish added to the museum, and the matter is considered by the local educational department, which, in Canton Zürich, rarely, if ever, refuses a request of this kind. Whenever an article is removed from the museum by a teacher it is entered in a book provided for the purpose. Pictures are frequently taken for the whole term and placed on the class-room walls, as a means of decoration as well as instruction. It struck me that the collections of objects are not used as much as they might be. The teachers generally have access to good books of reference, but there is a great lack of suitable books of travel for the children's own reading.

In the Secondary and "Advanced" Schools, where a specialist is employed to teach Geography, I have sometimes found a room devoted exclusively to these lessons, as at the Geneva College, and then the apparatus most constantly used is kept there. This plan is almost necessary if a magic lantern is much used, as windows must be such that they can be darkened quickly. Many Swiss Schools have an advantage in being lit by electric light, which is used for the lantern, and can easily be turned on and off during a lesson. It is true that sometimes a whole lesson may be devoted to showing views, in order to convey a general impression of the scenery of a country; but only three or four views can be shown at one lesson, if the teacher wishes to leave a distinct impression of special features: between the removal of one view and exhibition of the next, the children must find places on their maps, take notes, or see points illustrated by diagrams on the blackboard. I was present at a lesson given to a class of boys (age 13), of the Industrial School at Lausanne, when a magic lantern was thus used to illustrate a lesson on Spain. The lantern with its accessories cost, I was told, as much as 750 francs, and, being lit by the electric light, it showed views with marvellous distinctness. The desks were arranged in tiers, so that all the boys could see easily. The great wall black-board was made to slide on one side; behind it an immense sheet of glass, painted white, was let into the wall, upon which the views were thrown. I was told that the glass offered a remarkably good surface for this purpose, besides having the advantage that it could be washed quickly when necessary. The boxes, each containing 20 to 30 slides, were kept in the same room and labelled with the names of the countries the slides represented. There was one box-full for each country in Europe, sometimes two, and some slides of other parts of the world. Most of the slides were purchased of Levy & Sons, Paris.

One kind of geographical apparatus, which is far more common in Switzerland than with us, is reliefs. Some consider that the relief-map conveys as good an impression as a relief, besides being cheaper and more easily placed in a class-room so that all can see it. I think this may be true in the case of a large area, of which good relief-maps exist; and also where a relief must necessarily be on a small scale, necessitating great exaggeration of the heights of the mountains. For young children, however, a relief may be exceedingly useful, in order to teach them to read and understand the relief-map, which can supplant it later. I have seen a relief of part of Canton Zürich, placed side by side with a good topographical relief-map of the same area, and thus used with evident benefit. The use of such magnificent reliefs of isolated mountain masses as those exhibited in the Polytechnic Museum is obvious, but their size and price render their adoption in schools almost out of the question. I spent a morning in the museum, examining those made by Professor Heim of an "Ideal Glacier," "Ideal Volcano," "Type of an Erosion Valley," "Type of Sea Coasts, part showing erosion of Cliffs and part a sandy shore with Dunes," "Model of the Landslip at Elm, &c." Also I noticed his interesting method of constructing profile-reliefs. A topographical map of the required district is taken; at equal distances imaginary sections are cut through it, and the profiles of these, drawn and cut out of pieces of cardboard, are fastened so as to stand vertically on the horizontal map at the points they represent. When the whole is drawn and coloured geologically, the amount that can be learnt from a careful study of it is very great.

Dr Lumfeld and others of Dr Heim's former pupils have constructed most beautiful reliefs of the Bernese Oberland, scale 1 : 10,000, of the Lake of Lucerne, Dent du Midi, scale 3 : 50,000, Titlis Glacier, scale 1 : 25,000, &c. When I visited the Polytechnic Museum at Zürich, Dr Heim happened to be engaged in colouring a copy of his "Ideal Glacier," and I took the opportunity to ask him some questions on the subject of reliefs. He thinks, as do Dr Früh and Dr Brückner, that a scientific relief must show more than the map; therefore it cannot be entirely constructed from a map, but must also be made from nature, photographs and sketches. In order to express such details the area must be limited, so that the scale is 1 : 25,000, or at least 1 : 50,000. He is therefore opposed to a relief of the whole of Switzerland on a scale of 1 : 100,000, such as M. Perron has attempted, and would substitute several reliefs of interesting districts of the country on a scale of 1 : 25,000. The National Parliament of Switzerland is willing to give a grant towards the production of a good relief, and, with this aim, has been occupied in considering the respective merits of M. Perron's relief and the scheme advocated by Dr Brückner and others. The difficulties, however, of coming to a decision have prevented any practical steps being so far taken in the matter. I saw, at the Topographical Bureau, the beautiful atlas of Dufour, arranged as a wall-map, which, by means of oblique lighting and hatching, gives a very vivid idea of the morphology of Switzerland, and the characteristic formation of the Alps. The light is supposed to come from the north-west, as is generally the case, for technical reasons of production, but Dr Heim regards this as a mistake, because most of our sunshine comes from the south. In the geological map of Switzerland, made by him and Dr C. Schmidt, in 1894, on a scale of 1 : 500,000, he has been careful to reverse the processes, so that it is lighted as from the south-east. The method, adopted in Siegfried's atlas, of representing relief by contour-lines, is more exact than that of oblique lighting; but it is difficult to read, and not nearly so effective as a relief-map with oblique lighting. The late Dr Petermann, of Gotha, alluding to Siegfried's map in 1883, said he considered that Switzerland had, through her publications, placed herself at the head of all countries as to official maps. Lately Swiss cartographers have been concentrating their attention on the best methods of combining the exactness of relief produced by contour-lines, with the plastic effect of oblique lighting and colour. I think they have succeeded, and that the new wall-map of Switzerland, soon to be published for use in the schools, will take precedence of anything yet attempted in educational cartography. The Swiss Parliament has voted 100,000 francs towards its production, and, when finished, a copy will be given to every school in the country. The scale is 1 : 200,000, and the relief is shown by contour-lines for every 100 metres and by colouring, the apparent light coming from the north-west. The names will be printed in Latin characters, and in the language used in that part of Switzerland to which they refer. I watched M. Kummerly at work in his studio at Bern, painting the map with Winsor and Newton's water-colours, and my first impression of it was that, besides its geographical interest, it had an æsthetic value as the beautiful work of an artist. M. Kummerly showed me the studies he had painted among the mountains themselves, in order to get the shades of blue and purple he is now introducing into the map, the prevailing colour of which is mauve. The tops of the Alps are lit with the reddish Alpine glow of evening, the rivers are a green-blue, the lakes light blue; all is coloured with the aim of imitating the harmonious tints of nature, and not with the usual hard colours of a diagram. I heard that thirteen stones would be required for lithographing it, and even then, I fear, it must lose a great deal in the reproduction. It is an unique experiment in cartography, but if they find they can place in their schools not only a very scientific and accurate wall-map, but also a picture beautiful in itself, to be constantly before the children's eyes, I think they will have done much towards rendering the teaching of Geography attractive and educative.

At present the maps of Switzerland in general use in the schools are those of Keller, Ziegler, and sometimes the blank-slate one of M. Rosier. There are also the special wall-maps of the various Cantons, prepared by different firms. I think the schools in German Switzerland are increasingly employing the German maps of Kiepert and J. Perthes, for the countries of Europe and for continents, just as they are also adopting, in the higher classes, the German atlases of Dierke, Stieler and others. Wettstein's atlas is still the best known throughout Switzerland, and for the price (3 fr. 30) it is certainly a marvellous production, including, besides many excellent maps and plans, numerous diagrams to explain methods of cartographic representation and scale. The maps also emphasise the Physical Geography, and show the connections between the various regions portrayed. In the lower classes of the Primary Schools, the hand maps of Randegger, Keller, or Leuzinger are generally employed, but the schools of French Switzerland are gradually adopting the "Manual Atlas" (or combined atlas and text-book) of M. Rosier, which does away with the necessity for a separate atlas. M. Rosier's other text-books for the "Advanced" Schools do not contain large coloured maps, but are full of small ones to illustrate special features, and diagrams for statistical information, and pictures. They are the most careful and elaborate text-books for school children that I have seen in Switzerland. The first, on "Europe," received the prize offered at the Geographical Congress at Bern, 1884, for the elaboration of a manual suitable for the schools of French Switzerland. It is illustrated by 203 engravings, 118 diagrams, and one coloured map, and is written in an interesting, descriptive style. Many of the diagrams are little maps, illustrating the distribution of plants, animals and human races, the density of population, railway lines, &c., while others are lines to show the comparative lengths of rivers, heights of mountains, &c. The second volume treats similarly of Asia, Africa, America and Oceania, and now M. Rosier desires to write a third on Physiography. In addition to these, he is bringing out some others for the various classes of the Primary Schools, e.g. his Manual-Atlas for the middle course.

In German Switzerland the text-book occupies a subordinate place; yet in the schools and the Zürich Pestalozzian Museum I have seen several very useful little books on the Geography of various Cantons, or of Switzerland, with good illustrations, such as those of Egli, Stucki, Jacob, &c. Picture-Atlases are also used in some schools, for example the "Bilder Atlas" of Geistbecht, in the Girls' "Superior" School at Bern, and the "Bilder Atlas" of Wettstein in other places.

We have now in England several series of interesting and well-illustrated geographical readers, but we possess very few illustrated text-books for older school children[1], and, I believe, only one atlas of pictures at a price which renders it possible for every child to possess one. Nor do we possess suitable geographical books for the study of small areas of our country. Although we may not think it well to devote a year to the study of one or two counties, or even of such an area as Wales, still the existence of an illustrated manual for teachers, dealing with it after the method of Heimatkunde, would, I feel sure, stimulate a useful understanding of topography. The Swiss accomplish this end both by these manuals and also by their wall-pictures of native scenes, and splendid topographical maps. We in this country are far less enterprising and successful in this matter of educational cartography, especially in the topographical section. There are, for example, few British towns where a wall-map of the town and environs could be procured, suitable for educational work in its schools. We should do well to follow the example of Switzerland, and increase and improve our geographical apparatus.

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[1] The only good one I know of is *An Illustrated School Geography*, by Herbertson, published by Arnold (1898).

# CHAPTER VII.

## THE TEACHING OF GEOGRAPHY IN NORTH ITALY.

To understand the position of the Teaching of Geography in Italy, it is necessary to appreciate the enormous progress made there in all departments of education in recent times, and the great difficulties which are encountered. Without such knowledge a hasty visit might lead one to conclude that there was little to be learnt from the present systems of teaching in vogue, but the more I have been able to enter into the educational history of the country and to converse with those concerned, the more I have felt confidence in the permanent good which is resulting from the enthusiastic zeal with which the work is being urged forward, especially in North Italy. Yet further, I would say it is just at this unsettled time, when experiments are being tried and a restless spirit is struggling by every means to gain new light, that much can be learnt by the observer. At the time of the formation of the kingdom of Italy it was said, "The learning of the learned is high and the ignorance of the ignorant is profound." The learned were few and the ignorant many: in 1861, 22 per cent. only of the population were able to read. Education is now compulsory for children from the age of seven to nine, and, unless a knowledge of the subjects of the Lower Elementary course has been gained in this time, the compulsory age may be extended to eleven.

The teachers, whether private or public, must have a certificate of qualification; for the lower grade two years' training is required, and for the higher grade three years. Geographical knowledge is compulsory in both.

The following system of schools has now been established :—

| | | | |
|---|---|---|---|
| 1. | Infant Schools. | | |
| 2. | Primary School, Lower course. | Age | 6— 9. |
| | Upper course. | ,, | 9—11. |
| 3. | Complementary School. | ,, | 11—14. |
| | Normal School. | ,, | 14—17. |
| 4. | Technical School. | ,, | 11—14. |
| | Technical Institute. | ,, | 14—18. |
| 5. | Gymnasium. | ,, | 11—16. |
| | Lycée. | ,, | 16—19. |

The system of education in Italy is highly centralised under a Minister of Public Instruction at Rome; in this respect it differs *in toto* from that of Switzerland. In several quarters I heard this centralization condemned, as having impeded the introduction of reforms advocated by the chief educationalists. It is true every Province has a School-Council, composed of a president, the provincial inspector, and ten councillors, and this local council sanctions the appointment of teachers in elementary, normal, and secondary schools; but the ultimate authority rests with the Superior Council, which has all the power of framing syllabuses, recommending text-books, and directing the general trend of education. The President of this Council is the Minister of Public Instruction, who is a member of the government; it further consists of twenty-four ordinary members, and seven extraordinary members, appointed for seven years. Its judgment is required when the claims of a candidate to a vacant professorship are to be considered. There are, however, a few schools, which are regulated by the municipalities and not by the government.

The uniformity produced by this centralization is considered by some as politically necessary, for it aids in welding together

# ITALY.

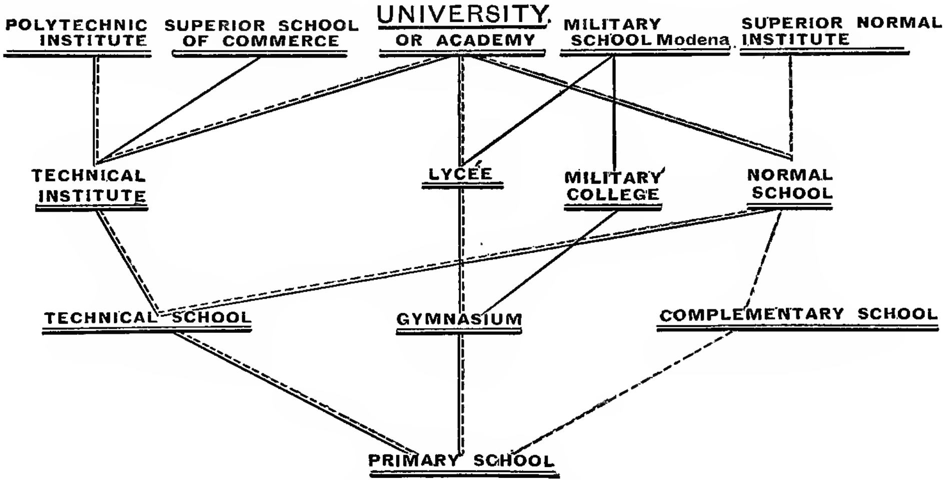

Diagram showing the Organised System of Public Instruction in Italy.

The continuous lines mark the course open for Boys: the dotted lines show the route for Girls.

the long-separated provinces which now form the Kingdom of Italy. But the differences of character, due to variation of race and environment, are so distinct that I think it would be better to recognise them; and it seems probable that if local self-government were extended, interest in educational subjects would be stimulated and individual genius might express itself in many directions.

The teaching of Geography in the country Primary Schools is greatly hampered by the fact that they include only the three classes of the lower course, and it is only in the third class that a little Geography is taught. Moreover, education is only compulsory for three years, so many leave school with geographical knowledge limited to a few names, and the poverty of the schools is too great to allow a good supply of wall-maps. This defect is so clearly recognised that, in the Normal Schools of Milan, special time is devoted to training the students to draw and enlarge maps, so that when they become teachers they can make them for themselves. In one or two Primary Schools I was surprised to find how well the pupils knew the positions of places, but the poverty of the schools in respect of text-books, geographical pictures, and apparatus will, I fear, be a drawback for some time. The wall-maps which I saw in the Primary Schools were generally those of Guido Cora. The best series of text-books for the Primary Schools is that of Roggero, and it is to be hoped that it will be increasingly adopted: it consists of three books, adapted for the first, second, and third year's work in Geography, and the respective prices of the same in paper covers is only 50, 75, and 60 centimes. The first book deals with orientation, geographical definitions, and a preliminary study of Italy. It contains two coloured maps of Italy and sixty-nine diagrams. The second is about Europe, and has sixty-five little pictures and diagrams and thirty coloured maps. The third considers Italy in detail, and is illustrated with four coloured maps and a hundred and nine pictures and diagrams.

Signor Ambrosini, Director of the Municipal Schools of Turin, is especially anxious to forward the introduction of Heimatkunde, and with this aim has made a large wall-map of the town, which will soon be placed in all the Primary Schools (scale 1 : 5,000); he also intends to issue a map of the neighbourhood of Turin and another of the province. He told me that he hopes to write a text-book for the schools, dealing with the interesting History as well as Geography of Turin, in the manner of some of the little Swiss books on Heimatkunde. At present the unaided teacher has little idea of rendering this study interesting, in the Swiss or German method, by out-door lessons and personal observations, and Heimatkunde is shirked. In the Pedagogic Museum at Genoa I saw some accounts of walks taken by the boys in the Primary School, with their teacher, but the system is not yet common.

In the report on Primary education (1895–96), various Inspectors complain bitterly that Geography is often reduced to a barren memory exercise, "For it is taught without reference to practical life;—the mistresses are often ignorant of the noteworthy matters of the district and the names of the mountains which are seen from the school." It is something that attention is called to this defect, and at the Florence Congress two papers were read by Signor C. G. Constantini, pointing out the ways by which elementary teaching may be rendered more educative. He strongly advocates out-door excursions and map-making. He objects to showing children a map of the world on Mercator's projection, and prefers maps of small areas, used with reference to a good globe.

In the Secondary Schools, i.e. the Technical, Complementary and Gymnasium, Geography is sometimes taught by the same professor as History, and sometimes by a Form Master. German wall-maps, as Kiepert's, are constantly employed, and the use of some atlas, such as Hugues' of Milan, is obligatory. Map-drawing is generally much practised, especially in the Technical Schools; maps are not only copied, but often reproduced from memory. I do not know whether the natural artistic ability of the Italians has anything to do with the extent to which this part of Geography is cultivated, but certainly they seem to excel in this matter. In the Pedagogic portions of the National Exhibition at Turin this year I had the opportunity of looking over an enormous number of portfolios of maps made by the pupils in various schools. All methods of map-drawing seemed well represented; in fact, in the same school, various ways of writing or printing names, of representing mountains, or relief, and of employing construction-lines, seemed to be in vogue at the same time. Some of the maps were such elaborate and beautiful specimens of cartography that it was impossible to regard them as typical of ordinary class-work, and one doubted their educative geographical utility. Other schools sent the complete set of maps done in each class by each boy, and hence a fairer judgment could be formed. The great majority of maps were political, an exception being made in the Technical School named "Baliano," at Genoa, where the facts of Physical Geography were separated from those of Political Geography. Many maps were drawn with lines of latitude and longitude, and others freehand, but a large proportion were copied by means of an arbitrary network of squares.

Whenever I saw maps drawn from memory no construction-lines or squares were employed, even if the map had originally been learnt in this way. I went into the third class of a Complementary Girls' School at Milan, where 42 pupils (aged 13) were studying Africa. I asked two to go to the black-board and draw it; this they did very quickly and accurately, describing the features as they filled them in with coloured chalks. Then I asked the pupils to draw from memory the southern part of Asia. Considering that they were quite unprepared for this, and were only allowed five minutes, the average result was remarkably good, and showed they were accustomed to this sort of work. I think Physiography is neglected, and also the study of the connection between various phenomena.

Many of the schools possess the relief of Italy by Cherubini, but few have any apparatus beyond this. I must mention, however, the splendid Pedagogic Museum at Genoa, the first established and largest in Italy, which is quite free, and made use of by the Primary and Secondary teachers of the town. Parties of school-children are brought to see the objects, an enormous Hall being set aside for the purpose of giving lessons to these children where the apparatus can be seen on the spot. Round this Hall are hung engravings of all the principal schools in the town (front view, sectional view, and plan). Many of the objects of the Museum and books from the library attached are in constant circulation in the schools, as there is a loan system by which the teachers can obtain them for a time. I noticed a good collection of paintings of cloud-forms, volcanoes, geysers, coral-islands, and photographs of various native costumes, reliefs of Genoa and Italy, a collection of industrial products, &c.

In the Military School at Milan, Professor Roggero has instituted geographical excursions, and about once a month takes 30 boys out for half a day. He gives each boy a piece of paper, on which certain points are marked, showing the relative position of the chief places they intend to visit. During the walk, each boy has to find out the correct orientation and fill in the details of the route. Next day, an account of the walk is written and handed in, along with the map, for criticism; this case is I believe exceptional, though many teachers are in favour of its further introduction.

On the whole Geography is better taught in the Technical Schools than in the Gymnasiums.

In the Lycée, Geography is entirely subservient to History; in reality it is not taught at all. This has been strongly condemned by the geographers of Italy, such as Ricchieri, and the matter was brought forward again at the Geographical Congress this year by Professor C. Bertacchi. Professor Ghisleri seems to have said and written so much on the subject in vain, that the tone of his article entitled "Geography in Classical Schools," which comments on this attempt of Bertacchi, is full of despair. He quotes Bertacchi, who writes, "I see the country in trouble about Africa, sacrificing money and life, aiming at colonies and distant commerce:—ah, what folly it is to wish to play the part of colonists, to wish to expand in the world, to aspire to compete with the great mercantile and maritime powers, and yet to continue to bring up the youth of the ruling classes, who alone can attend these classical institutions, in the direst ignorance of foreign countries, of their topography, institutions and productions! I trust that it will be the last time that an Italian Geographical Congress will have to occupy itself with the subject which is a blot on our national self-respect." To this Professor Ghisleri says, "I do not want to discourage my friend Bertacchi, but for me, I am sick of harping on the same subject."

The Normal Institutions in North Italy are chiefly for women, who teach in many of the Boys', as well as Girls', Primary Schools. The men obtain the right to teach in the Primary and Secondary Schools by attending certain courses of the Universities, but the women, if they wish to teach in the Advanced Girls' Schools, must be trained at the "Superior Institution" of Florence or Rome. In the Normal Schools for women, Geography is taught for two hours a week by the teacher of History, the method being similar to that employed in the Complementary Schools. I see that Sensini, in his paper on "The Teaching of Geography in the Normal Schools," thinks it would be better to give Geography-lessons only to those who intend afterwards to teach Geography, and to allow them to make a more detailed study of it. He acknowledges that Geography is an excellent subject for all, but under the present difficulties, as to shortness of time and lack of apparatus, &c., he considers that it would be best to concentrate their energies on the production of a few specialists, and to dedicate this field of work in the schools mainly to them. Professor

Ghisleri in his paper written in 1895, advocating the employment of specialists for the teaching of this subject, points out that most of the best teachers in Italy are self-made geographers, and argues that if the teaching of Geography were given over into any one man's hands he would be forced to specialise. "Without good teachers, good methods remain a dead letter, and it is useless to alter syllabuses without in some way producing capable teachers to follow them."

In the Normal Girls' School of Pavia I had the pleasure of meeting Signorina Josz, who has devoted a good deal of thought to this subject; she is one of the ladies who took part in the Congress[1], and her method of teaching by reliefs was there noticed with interest and praise. In the lower classes, the girls are shown how to make them with sand and gum; in the upper classes with a sort of papier maché and paste. As they have only the ordinary school-atlas to work from, and no scale as to proportion, the results are not supposed to be other than rough. It is evident that they take great pride and pleasure in the work, and in their future career as teachers in the elementary schools this power of rendering a map clear to little children must be useful. Signorina Josz is fully aware of the danger of devoting too much time to the manufacture of highly-finished diagrams and maps, where prettiness is liable to be considered before educative utility, and she insists on sufficient size and simplicity. She is attempting to develop Descriptive Geography, so that fewer names and more mental pictures can be given to the pupils, but regrets that Italian literature is poor in suitable children's stories descriptive of places and travels. Indeed, since Italy is the land of Cabot, of Marco Polo, Columbus, Amerigo Vespucci and Toscanelli, this seems to me a strange defect.

In the Commercial School at Genoa, Geography is being taught on interesting lines. Three hours a week are devoted to it in each class, and the master is a specialist. The entrance examination to this school demands a thorough knowledge of geographical definitions, elementary cosmography, and the political and physical Geography of the chief countries of Europe and of the other Continents. The school possesses a large industrial museum, a good supply of maps and pictures of commercial products, and a magic lantern. In the library of the school, which the pupils are allowed to use freely, I saw a good collection of geographical works, including Reclus' *Géographie Universelle.* The excursions undertaken are rather industrial than geographical, factories being inspected, &c. The week I was there the boys were going to Turin to see the National Exhibition. The pupils, aided by their teacher, had drawn up a series of large wall-diagrams, referring to the commerce of the port of Genoa, and these diagrams had been printed. They show, by means of lines, the fluctuations during certain years in the amount of various products imported and exported, such as of coal, rice, sugar, cotton, mineral-oil, wine, coffee, wool, &c. They had also made a plan of the port of Genoa on a scale of 1 : 80,000.

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[1] i.e. The Geographical Congress of Florence, 1898.

In the Technical Institute at Genoa, three hours a week are devoted to Geography in two classes, and a specialist is employed to teach it. The book employed by the pupils is the *Geography for Secondary Schools* of Dr F. M. Pasanisi, and the atlas, a good one, is Pennesi's *Atlante Scolastico,* price 6 francs 80 centimes. The Institute has 62 large wall-maps, of which 42 are those by Kiepert, and most of the remainder by Berghaus. I was present at a lesson on Liguria given to a class of boys, about 15 years old, who were much interested in the construction of a relief of Liguria with horizontal scale of 1 : 100,000 and a vertical scale of 3 : 100,000, on which some of their comrades were at work. The original had been very accurately constructed by means of cardboard cut out according to the contour-lines and superimposed, the angles left by the edges of the layers being filled with plaster. From a cast of this relief they had already obtained ten plaster reliefs, and were occupied in colouring them to render the morphology clearer. The Professor drew the map on the black-board bit by bit, explaining the influence of the morphology on the climate and products of the different parts, and the importance of the situations of the towns with regard to their trade. At Turin, the students of the Commercial and Technical subjects have the great advantage of the magnificent Industrial Museum so admirably arranged by Signor Jervis on a geographical basis.

In the University of Turin, Geography constitutes a one year's course for the candidates for the diploma of Philosophy. Professor Hugues gives three lectures a week, which are attended by some sixty students, fifteen being ladies. This year he is lecturing on America, laying stress on its discovery: next year he will deal with Australia.

At Genoa University, Professor Issel gives three lectures a week, and devotes them all to Physical Geography; partly because he feels this branch is neglected in the schools, partly because he feels best fitted to teach this part of Geography, as he is also Professor of Geology. He has aided the geographical students to form a sort of club, and once a week they arrange a meeting, with an average attendance of fifteen. At the end of the meeting Professor Issel criticises the paper usually read by some member, and the students also express their opinions. The subjects of these papers are decided by the authors, but Professor Issel encourages them to choose some country for special consideration, as his own course of Lectures deals with General Geography.

Professor Vittore Bellio is Professor of Geography at the University at Pavia, where this subject has been recognised for forty years. His course of lectures is given as a three-years' series, to help the Natural-Science students, alternately with a course of one year to aid the History students. This year he lectures on Anthropology, with reference to climate and other conditions, and twenty-one students are taking the course. Geography forms part of the examinations for the Degrees of Master of Philosophy, Letters, History, and Natural Science. No regular geographical excursions are undertaken, only geological ones, but now and then, when he finds one or two pupils have a special aptitude, and desire to go further than is possible for most, he helps them in this and other ways. At the present moment two of his old students are investigating the territory between Como and Lecco;—one is studying the distribution of plants, especially the vine, wheat and pine trees, noticing the effect geology and climate have on their distribution;—the other is investigating the lake, its depth, colour, temperature, &c. The result of these investigations will be published by the *Revista Geografica Italiana*, which is a journal generally published monthly. Professor Bellio went with these students on their first expedition to the district. He called their attention to special features, such as the angle and slope of the hills, and advised them as to their general method of work, and the instruments they would find useful. One of his three weekly lectures is generally devoted to statistical Geography, or Cartography. The former he illustrates by diagrams on the black-board, and in teaching the latter he has found the reliefs of D. Locchi very useful, for explaining the modes of cartographic representation employed in the excellent survey maps of the War Office.

For many years, Professor Riccheri taught Geography at the Academy at Milan, and though, owing to his present position at Palermo, I was unable to see him, I cannot pass by the help he gave me in sending me advice and pamphlets on the subject of this research. The post at Milan is now occupied by Professor Savio, who gives three lectures a week for a year, one of which is always public. His course consists of the physical and commercial Geography of the chief countries of Europe, one country being selected for more special treatment in the public lectures, which are well attended. His lectures are followed by the men who intend to teach in the schools and the students of the Faculty of Letters and Philosophy.

Professor Savio also teaches at the Gymnasium and Technical Institute, and insists on careful memory-map-drawing. He encouraged the boys of the latter college to make a number of reliefs, which I was interested in seeing. They were made of what appeared to be plaster of Paris on pieces of wood. Some were as large as 4 by 3½ feet, and gave evidence that much time and trouble had been devoted to them. One boy had even taken a large globe, 2½ feet in diameter, on a stand, and modelled on it the continents in relief. The only colouring in the maps was of the seas and the river-lines. As they represented whole continents, the relief was naturally much exaggerated.

Owing to my limited time, I was unfortunately unable to visit Cremona, but Professor Ghisleri, who teaches Geography in the Royal Lycée in that place, very kindly wrote me a long letter in answer to certain questions respecting his work and ideas. In this he states that, according to the official syllabuses, only a little historical Geography is demanded in the Lycée, but that he has done his utmost to develop this part. He has published a text-atlas of historical Geography, and teachers have been induced to occupy themselves with Geography whilst teaching History.

As to the state of geographical teaching in Italy, he writes as follows :—"The recognition of Geography as a class-subject and the improvement of books and atlases is due entirely to the exertions of individuals. As you will see by the resolutions passed by the third Geographical Congress, we are still waiting for the government to carry out the resolutions passed by the first Congress in 1892. In spite of the inertia of the government, the progress made in scientific and pedagogic productions in Italy is extremely remarkable. Fifteen years ago our maps were altogether inferior to French and German maps. Thanks to the Cartographic Institution at Rome, and the Italian Institution of Graphic Arts at Bergamo, we now possess examples of cartography praiseworthy for their exactitude and neatness."

Professor Ghisleri sent me his interesting treatise on Geography, contained in the new illustrated pedagogic Dictionary. In this article he quotes Professor Marinelli's definition of Geography, as the science of the How and the Where, and then proceeds to criticise adversely the method of Heimatkunde as an introduction to Geography. Since this method is now so universal in Germany and Switzerland the article has a special interest, and I venture to quote from it at length. After mentioning the new syllabus, which boasts of starting from things, instead of words, by making the pupil begin by measuring his own class-room, Ghisleri writes, "It is true we must seek to found our teaching on facts, but these facts must be of a geographical nature. Now the class-room is not a form of the earth, nor is it a natural accident, a plain, nor a mountain. In the same way the restriction of the first year of Geography to the District is non-natural since it rests merely on conventional fact, that is an administrative circle. But I would suppress all measures of length, all definitions, all mere names, and say to the child, 'This is the earth on which men live, we will speak of the earth and man.' A child can understand great ideas which are synthetic, before analytical study of details, as is shown by savage tribes and every race in its primitive state. The first month, or even two months, must be employed in telling stories calculated to stimulate the child, to awaken his spontaneous curiosity. I would describe the great Polar glaciers with their white bears, immense deserts with their tribes of camels, tempests on the ocean, little Esquimaux pursuing the seals, tropical forests, Japanese or Chinamen with their curious customs, immense virgin forests of America, sudden avalanches which bury whole villages, countries where it never rains, and countries where it always rains, very high mountains with eternal snow, endless plains, volcanoes and earthquakes, and the adventures of bold explorers. I should illustrate these stories by pictures and examples extracted from well-known works, for it is on the imagination that a good and fruitful teaching of the child must be based and not on your topographical maps, on scales and projections. Now consider how many names the pupils will have learnt almost unconsciously, how many true and beautiful and accurate notions will have been conveyed, and what valuable stores of curiosity and interest for every ulterior stage of their future study. All countries do not resemble each other; the child will reflect, there are hot and cold lands, some are pleasant and some unpleasant, some rich and others poor. *There are,—there are;*—such is the motto, the natural formula, of an introduction to the teaching of Geography. *There are things, and where are those things?* The curiosity of the *where?* invites the teacher to speak now of reality;—it will be the moment for ascending from narrative to topography. Describe the globe, with its horizons of earth and water, and indicate the east where the sun rises, and the west where it sets, and also the north and south,—tell of the movements which make days and years....After this call attention to neighbouring rivers, and draw a map of them, recalling the larger rivers formerly described....Then if possible show a mountain or hill in the neighbourhood, and draw a profile of it, afterwards speaking of higher mountains. ...To begin by plans is the same as beginning to teach children the mother-tongue by means of grammar."

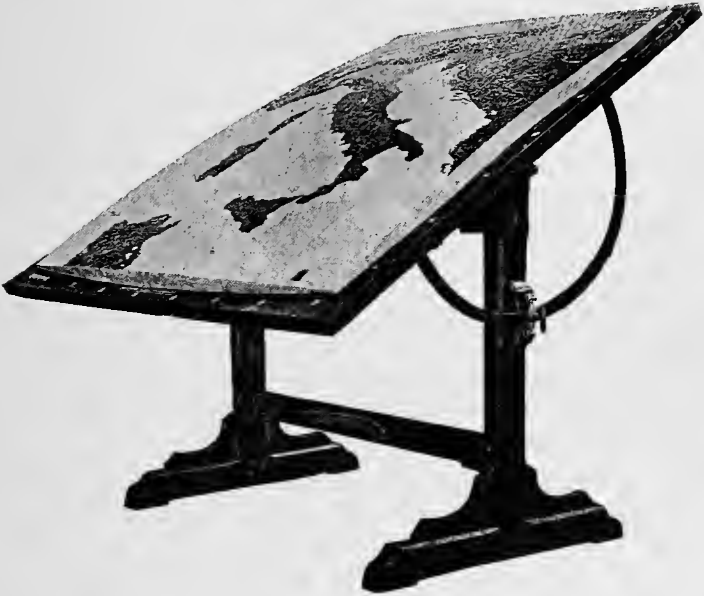
Space unfortunately does not allow me to quote more of this article, which is intensely interesting throughout. Professor Ghisleri's plea for the development of the imagination as well as the powers of observation and reason, recalls the words of Herr Stucki with regard to the same point in Switzerland. It rests with each teacher to develop an eclectic system, which is the "golden mean" of all good methods.

It remains for me to say a word or two respecting the geographical apparatus I had so good an opportunity of inspecting at the Turin Exhibition.

The numerous publications of Paravia are already well known in many countries. One of his most recent is "Europa Fisica," a map of Europe, coloured to show the relief, and pasted on a curved block of wood cut to represent the true curve of the earth's surface (scale 1 : 6,000,000). I noticed several of the large reliefs of Locchi, such as his "Lago di Garda" (scale 1 : 25,000, height 1 : 10,000), "Il Trentino" (scale 1 : 75,000), made from his wall-map of the same district. Also reliefs of the districts round Bologna and Florence (scale 1 : 25,000), made by the pupils of Professor Sensini, and of Vesuvius by the pupils of F. Borghi. The reliefs recently published have, as a rule, the same scale for the vertical and the horizontal, and are far less exaggerated than those published some years back. Professor Roggero, who has had a good deal to do with making these reliefs, told me he has come to the conclusion that great exaggeration in the vertical direction is an evil, and he did not intend to produce any more reliefs of this kind.

One of the first in Italy to advocate a relief-map on a true scale was the late Signor Pomba, whose famous relief of Italy (scale 1 : 1,000,000), showing the convex surface of the world, can be seen in the South Kensington Museum. This relief was first exhibited at the Turin Exhibition of 1884, and has been highly praised by Dr Penck, of Vienna, who considers the invention as of great value, enabling the eye to realize at a glance the utter insignificance of the inequalities of the earth's surface, considered with reference to the curve of its contour. The relief is mounted in a frame which allows it to swing and be placed at any angle required.

I must also mention the atlas of Dalla Vedova, towards the publication of which the Italian Government has voted 50,000 francs. Although begun twelve years ago the work is not yet finished, but the maps already published are certainly excellent, and there exists a great need for such work as this in Italy.



Relief of Italy showing the curve of the Earth's surface.
The invention of the late Mr C. Pomba.

In a paper read at the Geographical Congress at Florence, 1898, Professor Ricchieri attributes most of the present defects in Italian education, Geography included, to the fact that the educational system is subject to constant alteration owing to changes in the Ministry. He desires to see a Legislative Committee on Education, composed of scientific and competent men, whose work should be continuous. These ideas are enlarged on in the paper he read at the Geographical Congress at Florence this year. One section of the Congress was devoted to the careful consideration of pedagogic questions, and, as a conclusion to this chapter, I feel I cannot do better than give an abstract of the Resolutions passed respecting the teaching of Geography.

The Pedagogic Section of the Third Italian Geographical Congress resolved,—

1. That, in the Universities, special attention should be given to the necessity for preparing special teachers of Geography for Secondary Schools, who would have the desired stock of scientific knowledge. More attention should also be given to the study of geo-morphology.

2. That attendance at lectures on Geography at the superior Training Colleges should be compulsory for all preparing for the B.A. and M.A. degrees. Also that these lectures should be extended over at least two years. In the Superior women's training Colleges the time given to Geography must be increased, and the teachers of it placed on the same footing as that of other teachers.

3. That, in Technical Institutes, four hours instead of three should be devoted to Geography, and more regard be paid to the economic side of it.

4. In Secondary Schools, the teaching of Geography should be intrusted to special teachers. The course on Geography in the Lycée and superior Gymnasiums should be extended, and two hours a week devoted to it in the latter schools.

5. That Professor Sensini be requested to write a pamphlet, explaining his system of employing plastic for modelling reliefs in schools, and the simplest way by which this may be introduced into all Secondary Schools.

6. That the compilation of a reading book, formed of extracts from the works of travellers and suitable for enlivening the teaching of Geography is much to be recommended. This book should be within the reach of Secondary Schools.

7. That a Geographical Annual of the Universities and Secondary Schools be started, containing reports of their work.

8. That, in Primary Schools, Geography should be considered as a co-ordinating element, following as much as possible the method of direct observation.

9. That the Geographical Military Institute should try to make a new type of map suitable for Schools, and the Minister of Public Instruction should distribute these maps throughout the country.

10. That votes of thanks should be passed to the President of the Congress, and Presidents of the Pedagogic sections, and a hearty, well-deserved cheer to a colleague, who for so many years has been fighting valiant battles for Geography and for Italian Schools, namely Professor Archangelo Ghisleri.

Though these Resolutions show the weak points of the present system, yet the fact that they were passed at meetings *invariably well-attended*, speaks volumes for the enthusiastic zeal with which awakened Italy is struggling for her own advancement.

# APPENDIX. A—D.

## *Referring to Switzerland.*

## BIBLIOGRAPHY.

I have inserted only representative books, with which I am personally acquainted.

### BOOKS DEALING WITH THE SUBJECT GENERALLY.

*Report on Geographical Education.* (1886.) By Dr Scott Keltie. (John Murray.)

*Hints to Teachers and Students on the choice of Geographical books for Reading.* (1897.) By Dr Mill. (Longmans, Green and Co.)

*The Teaching of Geography.* (2nd Ed. 1892.) By Sir A. Geikie. (Macmillan.)

*The Realistic Teaching of Geography.* (1887.) By W. Jolly.

*How to study Geography.* (1889.) By F. Parker. (Appleton and Co. New York.)

*Chapter on Geography in Chapters on the Aims and Practice of Teaching.* (1897.) Edited by Spencer. By Yule Oldham.

*General Comparative Geography based on the Study of the Earth, in its relation with Nature and with the History of Man.* By Karl Ritter.

*The Earth and Man.* By Guyot.

*Lectures on the Earth and Man.* By Sir R. Strachey. (Macmillan.)

*Methods and Aids in Teaching Geography.* By King. (Lee and Shephard. Boston.)

*Methods of Teaching Geography.* (1892.) By Lucretia Crocker. (Boston School Supply Co.)

*Lessons in the New Geography.* (2nd Ed. 1896.) By Spencer Trotter. (Isbister & Co.)

## SWISS WORKS ON THE AIMS AND METHODS OF TEACHING GEOGRAPHY.

*L'Enseignement de la Géographie dans les Gymnases, et la place de cette Science dans le Programme des Examens de Maturité.* (1893.) Par Rosier.

*Separat Abdruck aus dem XII*$^{\text{ten}}$ *Jahresbericht der Geographischen Gesellschaft von Bern.*

*Die Stellung der Geographie auf dem Gymnasium.* (1893.) Von Dr Brückner. Bern.

*Der Geographieunterricht am schweiz-Gymnasium.* Von Dr Hotz. Aarau. Sauerländer & Co.

*Materialien für den Unterricht in der Schweizer-Geographie.* (1888.) Von Stucki. Bern. W. Kaiser.

*Der Geographische Unterricht auf der Stufe der Volks- und Mittelschule.* (1896.) Von G. Stucki. Zürich. Orell Füssli.

*Géographie Locale.* (1895.) Par Léon Genoud. Fribourg. Imprimerie Catholique Suisse.

*Quelques Réflexions sur l'Enseignement de la Géographie à l'École Primaire.* (Published in *L'École* December 10, 1897.) Par Rosier.

*Emile.* (1762.) Par Rousseau.

*Materialien für den Unterricht in der Heimatkunde.* Von G. Stucki.

## PAMPHLETS ON GEOGRAPHY IN THE SWISS UNIVERSITIES.

*Leçon d'Ouverture du cours de Géographie Physique.* (1896.) Par Dr M. Lugeon. (Lausanne. Corbay et Cie.)

*Leçon d'Ouverture du cours de Géographie Physique.* (1891.) Par Dr Schardt. Neuchâtel. Société Neuchâteloise d'Imprimerie.

*Les Principes de la Géographie moderne.* Par Professeur Brunhes. Paris. Bureaux de la Révue.

*Ausblicke auf die verschiedenen Gebiete der Geographie.* Von Dr Früh.

*Veränderung der Erdoberfläche im Umkreis des Kantons Zürich.* Von Dr H. Walser (1896). (Dissertation to obtain the Doctorate). Haller'sche Buchdruckerei. Bern.

## PAMPHLETS ON EXCURSIONS.

*The School Journey in Germany.* (1897.) By Miss Dodd. Special Reports, edited by M. Sadler.

*Die Pädagogische Schulreise.* (1885.) Von F. Beust. Zürich. Orell Füssli.

*Ueber die Verwertung der Schulausflüge zu Zwecken des Geographischen Unterrichtes.* (1889.) Von Dr Hotz. Berlin. Pormetter.

*Der Realschüler-Turnverein, Basel, in seinem Ferienheim im Glarnerland.* (1895.) Basel. Werner Riehm.

*Cours d'étude de la 1re Classe de l'École Normale des Garçons* (*L'École, Journal Pédagogique et Littéraire.*)

## WORKS ON MAP-MAKING AND GEOGRAPHICAL APPARATUS.

*Catalogue No.* 5 *des Publications du Bureau Topographique Fédéral.* (1897.) Bern.

*Catalogue Spécial. Exposition Nationale Suisse.* Genève. (1896.) Cartographie, Group XX. Genève. Imprimerie de la "Tribune de Gèneve."

*Les Progrès de la Cartographie.* (1893.) Par Dr Schardt. Neuchâtel. Société Neuchâteloise d'Imprimerie.

*Schweizerische Reliefkarten,* I. (1893.) Von Dr Brückner. Bern. Separatabdruck aus dem XII$^{\text{ten}}$ Jahresbericht der Geographischen Gesellschaft.

*Ein Relief der Schweiz.* (1897.) Von Dr Früh. Zürich. Orell Füssli.

*Ueber Orientirung und Orientirungsmittel.* Von Dr Früh. (1895.) Zürich. Orell Füssli.

*Sehen und Zeichnen.* (1894.) Von Dr Heim. Basel. Benno Schwabe.

*Das Kartenzeichnen im Dienste des Geographischen Unterrichtes.* (1896.) Von Schmid. Chur. Manatschal, Ebner and Cie.

*Méthode pour Enseigner la Géographie par l'Observation des formes de la Terre sur les Lieux mêmes, et leur Réproduction en Relief.* (1875.) Par F. Beust. Zürich. Schabelitz.

*Katalog der Sammlungen des Pestalozzianums in Zürich.* Buchdruckerei Emil Rüegg. (1897.)

Also various Numbers of Geographical Periodicals and the Text-Books in use in Swiss Schools.

# APPENDIX B.

## PERSONS INTERVIEWED IN SWITZERLAND.

| *Place.* | *Person.* |
|---|---|
| Basel. | Dr Hotz. Professor of Geography at the Gymnasium. |
| Bern. | Dr Brückner. Professor of Geography at the University. |
| | Herr Stucki. Formerly School Inspector. Teacher of Geography in the Girls' Normal Classes. |
| Freiburg. | Professor Brunhes. Professor of Geography at the University. |
| Geneva. | Professor E. Chaix. Professor of Geography at the Commercial College. |
| | Professor Rosier. Professor of Geography at the College. |
| | Professor Ritter. Lecturer on Physical Geography at the College. |
| Lausanne. | Dr Lugeon. Professor of Geography at the University. |
| | M. Meylan. Teacher of Geography in the Commercial and Industrial Schools. |
| | Professor Guex. Director of the Normal Schools. |
| Morges. | Professor Forel. Formerly Lecturer on Physical Geography. |
| Neuchâtel. | Professor Knapp. Professor of Geography at the Academy and Gymnasium. |
| | M. Dubied. Teacher at the "Superior" Girls' School. |
| | Professor Schardt. Professor of Geology at the Academy. |

| *Place.* | *Person.* |
|---|---|
| Zürich. | Dr Heim. Professor of Geology at the Polytechnic. |
| | Dr Früh. Professor of Geography at the Polytechnic. |
| | Dr Stoll. Professor of Geography at the University. |
| | Dr Beust. Headmaster of a private Boys' School, which has specialised in Geography. |
| | Dr Stadler. Headmaster of the Höhere Töchterschule. |

# APPENDIX C.

## LIST OF INSTITUTIONS VISITED IN SWITZERLAND AND LESSONS HEARD.

| | *Institutions.* | *Lessons.* |
|---|---|---|
| 7 | Primary Schools for Boys | 15 |
| 5 | Primary Schools for Girls | 11 |
| 1 | Practising School attached to the Normal School at Lausanne (co-educational) | 4 |
| 4 | Secondary Schools for Girls | 5 |
| 4 | Secondary Schools for Boys | 6 |
| 7 | Gymnasiums and Colleges for Boys | 12 |
| 4 | Higher Schools for Girls | 10 |
| 1 | Canton School | 5 |
| 1 | Commercial School (for Boys) | 2 |
| 1 | Industrial School ,, ,, | 3 |
| 1 | Real School ,, ,, | 3 |
| 3 | Normal Schools for Boys | 4 |
| 4 | Normal Schools for Girls | 7 |
| 5 | Universities | 9 |
| 1 | Academy (Neuchâtel) | 2 |
| 4 | Private Schools | 4 |
| Total 53 | Schools, &c. | 102 |

The Polytechnic Geological Museum at Zürich.
Four Pedagogic Museums.
The Topographical Bureau at Bern.
The Cartographic Establishment at Winterthur.

# APPENDIX D.

## GEOGRAPHICAL SYLLABUSES

### OF THE PRIMARY AND SECONDARY SCHOOLS OF CANTON BERN AND THE GYMNASIUM OF BERN (CITY).

| *School.* | *Class.* | *Age.* | *Time per week.* | *Syllabus.* |
|---|---|---|---|---|
| Primary Schools. | 5 | 9 | 2 hours. | Birthplace. District. The Jura. |
| | 4 | 10 | 2 „ | Canton Bern. |
| | 3 | 11 | 2 „ | The Ancient Cantons. |
| | 2 | 12 | 2 „ | Switzerland. |
| | 1 | 13 | 2 „ | Europe and other Continents. Elementary Cosmography. |
| Secondary Boys' and Girls' Schools. | 5 | | 2 „ | Canton Bern and Switzerland. |
| | 4 | | 2 „ | Europe, physical and political. |
| | 3 | | 2 „ | Other Continents. |
| | 2 | | 2 „ | Switzerland and Europe. |
| | 1 | | 2 „ | Elementary Cosmography and Physical Geography. |
| Pro-gymnasium. | 4 | 10 | 2 „ | Heimatkunde. Canton. Switzerland. |
| | 3 | 11 | 2 „ | Europe. Mathematical Geography. |
| | 2 | 12 | 2 „ | Other Continents. |
| | 1 | 13 | 2 „ | Switzerland in detail. |

| *School.* | *Class.* | *Age.* | *Time per week.* | *Syllabus.* |
|---|---|---|---|---|
| Gymnasium. (*a*) Commercial Section. | 4 | 14 | 2 hours. | The Continents, exclusive of Europe.<br>Mathematical and Physical Geography. |
| | 3 | 15 | 2 " | Europe in outline. The countries of Switzerland, Italy, Germany, France, Great Britain, Netherlands. |
| | 2 | 16 | 2 " | Rest of Europe. Other Continents. |
| | 1 | 17 | 2 " | Statistical Geography.<br>Productions, Exports, Imports.<br>Repetition of Switzerland. |
| (*b*) Real Section. | 4 | 14 | 2 " | The Continents, except Europe. Map-reading. Mathematical and Physical Geography. |
| | 3 | 15 | 2 " | Countries of Europe. |
| | 2 | 16 | 1 " | Mathematical and Physical Geography. |
| | 1 | 17 | 1 " | Physical Geography. |
| (*c*) Literary Section. | 4 | 14 | 2 " | The Continents, except Europe. |
| | 3 | 15 | 2 " | Switzerland. Introductions to the study of the people. Mathematical Geography. |
| | 2 | 16 | | None. |
| | 1 | 17 | | None. |
| | | | | A specialist is employed to teach Geography in all classes above the Progymnasium :—Dr Walser. |

# APPENDIX E.

## *Referring to North Italy.*

### BIBLIOGRAPHY.

*History of Italian Education in the Report of the Commissioner of Education.* (1893—1894.) Volume I. Chapter VIII.

The Article on Geography by Professor A. Ghisleri in the *Dizionario Illustrato di Pedagogia.* Volume I. (1897.) Casa editrice Dr Francesco Vallardi. Milano.

*L'Insegnamento della Geografia nelle Scuole Secondarie.* (1888.) By Professor G. Ricchieri. Roma. Presso la Sosieta Geografica Italiana.

*Gli Studi Geografici nell' Educazione Moderna* (1897.) By Professor G. Ricchieri. Firenze. Tipografia M. Ricci.

*L'Aspect Physique de l'Italie. Relief à surface convexe imaginé et construit par César Pomba.* Turin. Imprimerie de l'union Tipographique éditrice.

*Sull' opportunitá di costituire l'Insegnamento autonomo della Geografia tanto nell' Ginnasio quanto nel Licco.* (1895.) By Professor Ghisleri. Roma. G. Civelli.

Various numbers of *Le Communicazione di un Collega*, a magazine edited by Professor Ghisleri and published monthly in the interests of the teaching of Geography and History.

Twelve papers read at the meeting of the Pedagogic section of the third Geographical Congress held at Florence. (1898.)

Official Syllabuses and Regulations for all classes of Schools.

*Catalogo della ditta.* G. B. Parania e Cie. Torino.

## PERSONS INTERVIEWED IN ITALY.

| *Place.* | *Person.* |
|---|---|
| Genoa. | Professor Issel. Professor of Geography at the University. |
| Milan. | Professor Roggero. Professor of Geography at the Military College and the "Superior" Girls' School. |
| Pavia. | Professor Bellio, Professor of Geography at the University. |
|  | Signorina Josz. Mistress of Geography at the Normal and Complementary Schools. |
| Turin. | Professor Hugues. Professor of Geography at the University. |
|  | Professor Ambrosini. Director of the Municipal Schools of the town. |
|  | Signor Jervis, Director of the Industrial Museum. |
|  | The late Signor Pomba. Inventor of the "Relief of Italy, shewing the convex surface of the earth." |

## LIST OF INSTITUTIONS VISITED IN NORTH ITALY AND LESSONS HEARD.

| *Institutions.* | *Lessons.* |
|---|---|
| Five Primary Schools. (Four for Girls) . . . | 5 |
| One Secondary Municipal School for Girls at Turin. | 1 |
| Three Technical Schools. (Two for Girls) . . | 3 |
| Four Complementary Schools. (Girls) . . . | 5 |
| Four Normal Schools for Girls. . . . | 4 |
| Commercial College for Boys at Genoa. . . . | 1 |
| Three Technical Institutions for Boys. . . . | 3 |
| Total. 21 Schools, &c. | 22 |

The Pedagogic Museum at Genoa.

The Industrial Museum at Turin.

The Pedagogic Geographical portion of the National Exhibition held this year at Turin.

Paravia and Co., Publishers of Geographical Apparatus at Turin.

CAMBRIDGE: PRINTED BY J. AND C. F. CLAY, AT THE UNIVERSITY PRESS.